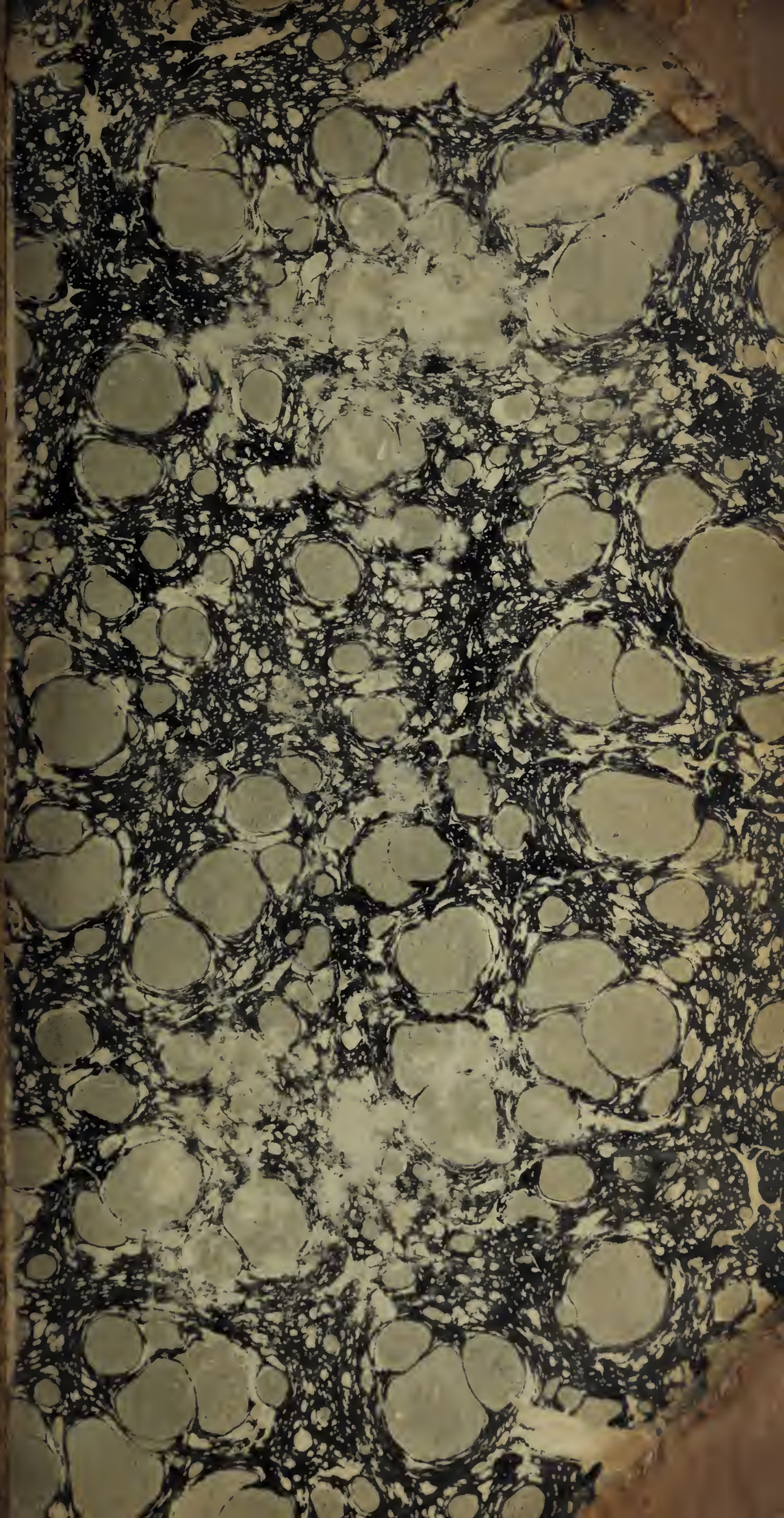

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THE

VETERINARIAN,

FOR 1832.

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VOL. V.

EDITED BY MESSRS. PERCIVALL AND YOUATT.

Ars Veterinaria post medicinam secunda est.—*Vegetius.*

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Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE III.

The Nasal Cavity in the Horse, the Ox, the Sheep, the Swine, and the Dog.

OF the other bones, Gentlemen, which form the parietes of the nasal cavity, my description will be brief. Few points of practical importance can be connected with them, and I have too much to do in the present course to be delayed by that which does not immediately bear upon the function of parts, or the nature of disease.

The Superior Maxillary.—In the horse this bone forms by far the greater part of the lateral portion of the external parietes of the cavity of the nose, and the central portion of the floor of it; in fact, it constitutes more than three-fourths of the bony wall of the nasal cavity. The superior maxillary will be best described, when we consider the digestive system to which, as containing the teeth—the agents of mastication—it most properly belongs. I will now content myself with pointing out to you, on its internal surface, the attachment of the inferior portion of the superior turbinated bone, along the suture connecting the superior maxillary with the nasal;—the curious depression, or gutter, hollowed out in it for the middle meatus of the nose, or the channel through which the secretions, natural or morbid, from the nasal cavity and the maxillary sinuses, are discharged;—the prominent, but irregularly-formed ridge for the attachment of the inferior turbinated bone;—the more spacious hollow beneath, constituting the

21636

inferior meatus, or the principal or only air-passage;—the inferior portion of the bony canal which contains the anterior maxillary nerves, and also the inferior division of the bony portion of the lachrymal duct. You will likewise observe, that the palatine processes of this bone form the central and greater part of the floor of the nasal cavity and the roof of the palate; and that, denticulated with the suture that unites them, is the vomer, running along the whole of the floor, and supporting the cartilaginous septum by which the cavity is divided.

In cattle the superior maxillary bones will be found like the nasals, and for the same reason, considerably smaller; but in addition to this, other bones encroach upon them, and particularly the palatine bone at the floor of the cavity. The other points of difference are, so far as the nasal cavity is concerned, the greater length and size of the canalis infra-orbitarius, and the thickness of the floor; not consisting of a single plate of bone, or with a very slight diploe, but hollowed out into numerous and deep cells, and being a continuation of the maxillary sinuses. In addition to this, we may remark the shortness of the nasal cavity compared with that of the horse, resulting from the shortness of the superior maxillary bone.

In the sheep, the superior maxillary is shortened almost as much as in the ox.

In the swine it is diminished, by the intrusion of the anterior maxillary for the purpose of strength; and *in the dog*, while the bone is enlarged for the more extended and powerful insertion of the muscles of mastication, even so as to push the lachrymal bone from its place, the nasal surface is increased by the depth and projection of the bone, rather than by its length; while it is curtailed below, even more than in the ox and sheep, by the circular expansion of the palatine bones. The shortness of the bony canal of the anterior maxillary nerve is very remarkable; the bulk and strength of the masseter muscle seeming to require this earlier appearance and distribution and communication with the motor branches of the portio dura of the seventh pair.

The Anterior Maxillary Bones.—These are the *inter-maxillaries* of the comparative anatomist, locked between the superior maxillary bones, and also belonging to the digestive system.

In the horse, their posterior borders run along the anterior and upper edge of the superior maxillary, between which and the nasal bone the extremities of it are inserted. They thus leave a large angular space, which is occupied by the soft parts that constitute the nostrils, and that are moveable, and can expand or dilate as the respiration or breathing of the animal may require. These borders, narrow, rounded, and polished, afford attachment to im-

portant muscles, presently to be described. The inner surface of these processes forms an attachment for, and supports the lining membrane of, the nasal cavity anteriorly.

These bones, of which there is one on each side, uniting, form the rounded extremity of the upper jaw, in which the incisor teeth are inserted, and from the under and palatine surface of which there proceed two long thin projections of bone, forming the anterior portion of the roof of the palate, and the floor of the nasal cavity.

In the ox.—The anterior maxillaries of the ox, containing no incisor teeth, are small compared with those of the horse, and barely reach to the nasal bones. There is generally a small portion of cartilage, interposed between the extremity of the anterior borders of these bones, so that they seem to diverge from each other, forming a broad termination for the elastic pad or cushion, which is the substitute for teeth here; and the palatine processes are longer and narrower, and leave a considerable space unoccupied, except by soft substance, in the roof of the palate and the floor of the nose.

In the sheep.—These bones are similarly constructed as in the ox, except that the anterior extremities, constituting the base of the muzzle, are not, comparatively, so broad.

In the swine, for the purposes of strength and digging to which I have alluded, the anterior border is somewhat sharpened, leaving but a small space for the nostril; and he wants not a more extensive one, for he is not an animal possessed of remarkable speed. The process of the anterior maxillary, received between the superior one and the nasal bones, is very much longer. In the horse it is not one-tenth part of the length of the nasal bone. In the hog it reaches two-thirds of the way up that bone. The attachment between these bones is likewise a complicated one, and all this to give strength to the part. The palatine processes here are mere bony laminæ.

In the dog, a beast of prey, strength is required in the anterior maxillaries; therefore the border is short thick, and rounded; the opening of the nose is small, but round, instead of angular; the process between the superior maxillary and the nasal is long, but not so wide as in the hog; and the connexion between the bones is a denticulated and mortised one, and soon becomes obliterated. The palatine processes are wider than in the swine, but not so wide as in the sheep or the ox.

The Palatine Bones.—Constituting the crescentic and posterior border of the palate and the nasal cavity, we find these bones. They are irregularly formed, and a perfect description of them would detain us for a length of time that we can ill spare. We

first observe them at the termination of the palatine processes of the superior maxillary bones, as it were surrounding, but, in fact, locked in and supported by, these bones. They form, in all our domesticated animals, a smooth round polished border at the point where the cavities of the mouth and the nose would terminate in one common passage leading on to the pharynx, and which border gives attachment to the velum palati, or soft palate, presently to be described, that partially or completely separates those cavities. If we trace this bone posteriorly in the *horse*, we find that it forms, on either side, the wall of the continuation of the nasal cavity from both nostrils, and which, now undivided, is called the ductus communis narium. It is separated from the mouth by the velum palati, and leads on towards the larynx. We here observe two processes on either side of this canal, one behind the last molar, and being the pterigoid process of the sphenoid bone, the other further back, and being a styloid, or sharpened process of the palatine bone, and having, in the recent subject, a beautiful cartilaginous hook or pulley, round which plays the tendon of the stylo-palatine muscle, or principal tensor muscle of the velum palati. Externally we trace the connexion of this bone with the tuberosity of the superior maxillary; and, lying as it were between these two bones, that singular and important depression or hollow leading to the anterior and posterior palatine foramina, and the infra-orbital canal.

The principal difference in the construction of these bones in our other patients, consists in their relative bulk. In the *ruminant* the palatine bones occupy a far greater portion of the palate and the floor of the nose than they do in the horse. They particularly do so in the *ox;* and the walls of the ductus communis narium are considerably deeper. In the *hog* and the *dog* the palatine bones throw an elliptical portion of no little development down the palate.

The Vomer.—The last bone to be described is the *vomer*. It cannot be said, strictly speaking, to form a part of the floor of the cavity of the nose, but it lies along the centre of it, denticulated with, and supported by, the suture which unites the palatine processes of the superior maxillary. It is called the vomer, from its resemblance to a ploughshare. It reaches from the palatine processes of the anterior maxillary to the sphenoid bone, and is composed of a groove which embraces and supports the cartilage that divides the nostrils. It continues in contact with the floor of the cavity through its whole extent, and when it arrives at the ductus communis, it pursues its course along the centre of it, unconnected with either of the sides, until it arrives at the æthmoid bone, on the body of which it expands, seemingly em-

bracing it; and two processes like the ears of a cat project still more posteriorly, and terminate on the sphenoid bone. It does not, however, closely adhere to the æthmoid bone, but there is a space between them, towards the centre, through which nerves and bloodvessels pass to the nostril, and particularly to the cartilaginous septum.

The difference between this bone in the horse and in *cattle*, principally consists in its articulating in the latter with the maxillary bones only, and not with the palatine, so that in them the nasal cavity is not divided through its whole extent, but there is a communication under the vomer, before we arrive at the ductus communis, and this communication is more or less extensive in proportion to the space occupied by the palatine bone in the floor of the cavity. In consequence of the vomer being thus separated from the palatines, and likewise of the depth of the palatine surfaces that line the ductus communis, the vomer seems in cattle and sheep to be deeply buried between them. The groove of the vomer is likewise deeper in cattle than in the horse; for if it denticulates only with a part of the floor, it is necessary that it should more deeply embrace the septum, in order to give it sufficient support.

The Septum.—The central wall of division between the cavities of the nose is a cartilaginous, and not a bony one. It is of considerable thickness and strength, embedded in the channel of the vomer below, firmly adhering to the suture of the nasals above, and extending from the points of the nasals anteriorly, to the descending floor of the frontal sinuses, and to the cribriform plate of the æthmoid bone posteriorly. It divides the cavity of the nose into two equal parts, and is placed in the centre for the purpose of strength. I have stated that the nasal bones are liable to injury; they are occasionally fractured; but this firm and elastic cartilage placed under the crown of the arch affords a very considerable support, and a support of a peculiar nature, a gradually yielding resistance, that neutralizes almost any force that can be applied.

We shall see, by and by, that the membrane lining the nasal cavity is a highly sensitive one, and peculiarly liable to accident and disease. The inflammation excited will rapidly spread, and the whole of the cavity may participate in it; thence would arise pain and swelling, and difficulty, or impossibility, of breathing through a passage previously nearly filled with the apparatus belonging to the sense of smell. There is one species of inflammation, insidious and fatal, to which the horse and his varieties are alone exposed, viz. that of glanders. This interposition, then, of the septum is a wise and benevolent provision to hinder the spread

of the mischief, by cutting off all communication with the neighbouring parts; and also to preserve one nostril pervious, when the other is diseased or obstructed. It would appear as if there were design in this—as if that dreadful malady, which our absurd management of this noble quadruped has entailed upon him, had been foreseen, and in some degree provided against. The horse and the ass alone are subject to glanders, and in them alone is the division between the nostrils perfect. From the separation of the vomer from the palate there is a communication between the cavities far below the crescental border in *cattle and sheep*, while in the *hog* the perfect division scarcely extends more than half way along the nostril. There is a sufficient division to cut off the communication of inflammation or other disease from one nostril to another under ordinary circumstances; and where this pest of the equine race is concerned, the division is perfect. Where it is left imperfect by the separation of the vomer from the floor, and the consequent impairment of strength, there is provision made for the security of the part in the broad expanse of the forehead in the ox and the sheep, and on which the blow would be more likely to fall than on the nasals; and in the form and the nature of the connexion of the nasals with the neighbouring bones, and also in the strength of those bones in the hog and the dog.

The Æthmoid Bones.—We arrive at length at the contents of the nasal cavity. Posteriorly and superiorly, on each side, in the common duct, but scarcely reaching into the closed nostril, is the æthmoid bone, or that portion of it which may be termed the *æthmoidal cells.* On the upper and anterior part of the æthmoid bone in the *horse* there is a somewhat curved projection or eminence, possessing no indistinct resemblance to the forepart of the comb of a cock, and hence called the *crista galli.* It supports the perpendicular plate of the skull before, and the falciform process of the dura mater behind: on either side of it, and supported by it, are two thin plates of bone pierced with innumerable holes—the *cribriform plates* of the æthmoid bone—and through which pass the pulpy filaments of the olfactory nerve.

From the bony arch which surrounds this plate, arises a pear-shaped collection of thin, porous, bony cells. I feel some difficulty in describing them. Conceive a great number of little hollow pedicles proceeding from, and forming around, the cribriform plate. As they move downward they belly out into distinct vesicles or cavities; smaller and more numerous behind; fewer in number, and larger in front, and each of them, not a simple cavity, but more or less convoluted; while the bony walls of these cells is of gossamer thinness, and porous as any gauze. All of

them communicate together, and are lined and externally wrapped together by the same membrane, the whole assuming a pear-like shape, attached by its base or greater extremity; decreasing in size as it proceeds downward; the cells becoming fewer; and terminating at length in one cell, a kind of pedicle or stalk, and which passes under the superior turbinated bone, and communicates with the central meatus, and forms a kind of valve over the opening between the nasal cavity and the maxillary sinuses. Then if you add that the olfactory or first pair of nerves abuts upon these cribriform plates, and passes through their minute openings, and spreads itself over every one of these cells, but thicker and more evident to the eye near the cribriform plate, you have a tolerably correct picture of this portion of the æthmoid bone.

This bone has different degrees of development in different animals, in proportion to their acuteness of smell. The *ox* is not so domesticated an animal as the horse. He has more occasion for acuteness of smell than the horse, and particularly in the early part of the spring, when the plants are young, and have not acquired their peculiar scent, therefore this portion of the æthmoid bone is much larger in him than in the horse. In the *sheep* it is large, and seems to fill the superior portion of the nasal cavity. It is even more developed in the *swine* than in the horse; but in the *dog* it seems to occupy the cavity almost to the exclusion of the turbinated bones. Being nearer to the cribriform plate than they are, it is probably most concerned in the sense of smell, and therefore larger where acuteness of smell is required, and in proportion as it is required. It is much more fragile in the dog than in the ox, and the plates have a considerably thinner structure. The æthmoid bone of the horse or the ox may be removed from its situation with little injury, but that of the dog can scarcely be meddled with without fracture.

The turbinated Bones.—Below the æthmoid are the two turbinated bones. *The superior turbinated bone* in the *horse* seems to be almost a continuance of the æthmoid. It is oblong and convoluted, and thence its name, turbinated or turban-shaped. The French call these bones *cornets*, from their convolutions. It presents a labyrinth of cavities, divided into cells by curious thin septa, and all of them communicating with each other; and the parietes being thin, porous, elastic, in the living animal, and exceedingly brittle in the dead one.

It is so placed as to form a division between the nasal cavity and the maxillary sinuses. It is that which renders them separate cavities, and there is a communication between, as I have

stated, under the valve-like structure of the prolongation of the lower cell of the æthmoid bone.

In *oxen* the superior turbinated bone is small and simple, and is almost destitute of convolutions. It is evidently merely supplementary to the æthmoid, and its function is diminished and rendered unnecessary by the development of that bone. This is more particularly so in the *dog*, where the turbinated bones are reduced to utter insignificance by the bulk of the æthmoid.

The *inferior turbinated bone* in the *horse* is more porous than the superior one; it is also more convoluted, and the convolutions are not a little complicated. The gauze-like structure of this bone is worthy of notice, and also the different manner in which the two cornets are convoluted; the upper portion of the superior bone being most closely attached to the walls of the cavity, and the lower border lying comparatively loose;—the reverse taking place with the lower turbinator. The inferior turbinator lies along the superior maxillary, below its union with the nasal. Neither of them can be separated from the bony parietes of the cavity by maceration, but they are too readily broken off in our dry preparations. A prolongation of the lower turbinator extends over the inner ala of the false nostril, and may be readily seen by lifting the nostril. It has, sometimes, been mistaken for a morbid tumour, or minute polypus. The hollow pedicle which runs down thus far has no outlet, but seems designed to give support to the inner ala of the false nostril. Comparative anatomists speak of the connexion between the two turbinated bones, but I have never been able satisfactorily to trace it.

In the *ruminants*, the inferior turbinated bone is more developed, and particularly in the *sheep*, so as to fill up, as it were, the whole of the cavity, accounting for the readiness with which that animal is *blown* when he is a little hurried. In the *dog* this bone is very small, but is curiously complicated. We need in him both speed and scent; this bone is also unusually convoluted, and the nasal cavity is left more open.

The Meatus.—You will perceive that these bones divide the cavity into three distinct meatuses or channels; the superior one lies between the superior turbinated one and the nasal bone, constituting the roof of the cavity, and it even extends above, and by the side of the æthmoid bone, to the cribriform plate, and it is closed at its superior termination. It is defended from the access of the external air, or, at least, from any violent current of air, by the development of the false nostril at its lower part. It is an interposed space to defend the æthmoid bones from injury if the nasals should be fractured: and the air, loitering as it were

in it, and being longer in contact with the sensitive membrane by which it is lined, contributes to the acuter sense of smell. It is the portion of the cavity more particularly devoted to the sense of smell. You will not forget the use you may make of it in fracture of the nasals; an elevator may be introduced below, or the trephine may be applied through its whole extent.

The central meatus lies between the two turbinated bones. It receives every natural or morbid discharge from the maxillary and other sinuses, for there is a valve-like opening into these sinuses, two-thirds of the way up the meatus, and under the superior turbinated bone. There is only one spot, pointed out to you by these preparations, at which the trephine could possibly be applied.

The largest channel is along the floor of the nasal cavity, under the inferior turbinator, and extending from the anterior to the posterior termination of the cavity. It is the proper air-passage; and because it has this important function it is out of the reach of injury or violence, and is not clogged by any discharges but those that proceed from the respiratory tubes beyond the nostril, or an exceedingly unfrequent regurgitation of the matter from the stomach. The distinct offices of these channels, and their different construction, admirably adapted for the performance of each, deserve your attention.

The Maxillary and other Sinuses.—When the superior turbinated bone is removed, the maxillary sinus, of which I shall have to speak under another system, is exposed, or, rather, becomes a portion of the nasal cavity. With the maxillary sinuses, the frontal, the superior æthmoidal, and the sphenoidal in the horse, and the palatine cells in the ox, communicate. Altogether they form a vast hollow, and under some diseases, and particularly under glanders, contain a great quantity of purulent or other fluid. The maxillary sinus freely communicates with the others, and it opens into the nasal cavity under the superior turbinated bone.

The Lachrymal Duct.—This is the channel through which the superfluous tears are conveyed to the lower part of the nostril; and it is exposed to view when the superior turbinated bone is removed. There is, behind the tubercle on the lachrymal bone, varying in size in our different patients, and which will be more particularly described when we treat of the age, a funnel-shaped depression, into which the superfluous fluid of the eye is received through the puncta on either side of the caruncle. I will not detain you by entering into the dispute, whether the membrane by which this funnel is lined is a proper sac; but it is, at least, an

enlargement of, or the most capacious part of the lachrymal duct, and to a person possessed of common eyesight it is plainly enough a sac.

A long canal here commences, and runs down the lachrymal and along the maxillary bone, very small, and with difficulty admitting any probe. Passing over the maxillary, it takes a direction a little superiorly, so that it must not only be a small, but a flexible probe, to pass through it. About an inch and a half down the maxillary, and not more than half an inch from the foramen infra orbitarium posteriorly, and a little superiorly, it enlarges, and becomes membranous, and is continued downward until it terminates on the inner and inferior part of the nostril, below the proper lining of the nostril, and on the cuticle. It terminates on the cuticle, that the highly sensitive membrane of the nose may not be excoriated by the tears, occasionally rendered acrimonious, in inflammation of the eye. The oval termination of this duct is easily brought into view by lifting the nostril.

We shall have, by and by, to speak of a disease, which is characterized, in its later stages at least, by ulceration of the Schneiderian membrane, and ulcers of a chancrous nature assuming a definite rounded or oval form. Take care that you do not mistake this for one of them, or pronounce a healthy horse to be glandered, because, for the first time, you happen to observe the termination of this duct. It is a mistake that has been made by many a good horseman, and even by some veterinary surgeons. A little while ago I was sent for in great haste by the coachman of one of our four-in-hand gentlemen. I found him in sad tribulation; one of his master's best horses was glandered, and the disease would run through the whole team. It was the first time that this aperture had attracted the attention of a man who would not have yielded to any one in pretension to horse-knowledge. I knew one of *your* brethren who would otherwise have passed a very good examination, but he happened, unfortunately, to say that the nasal duct opened on the Schneiderian membrane; and he was turned back on this point of practice.

FISTULA LACHRYMALIS.

From some occasional acrimony of the tears, the membrane lining this duct may inflame and thicken; or some foreign body may insinuate itself into the duct; or some unctuous matter from the ciliary glands; and the fluid accumulates in the sac and distends it, and it bursts: and the ulcer eats through the integument, and there is a small fistulous opening beneath the inner canthus

of the eye, with a constant discharge from it. It is the constant discharge from it that prevents the wound from healing, and, in some cases, the lachrymal bone is involved in the ulcerative process, and becomes carious.

This happens so seldom in the *horse*, that the existence of fistula lachrymalis has been denied in him; but there are cases of it on record, and there are few who have not seen the enlargement of the sac preparatory to it; viz. the soft tumour evidently filled with fluid, easily pressed out, and escaping either from the eye or through the nose. When this has been neglected, and the fluid has become viscid, inflammation, and ulceration, and caries, have ensued.

Our continental neighbours, who are very ingenious in devising plans of treatment for various diseases, which, I believe, even they would find it difficult to carry into execution, have told us to inject some bland tepid fluid through the lower punctum, and thus cleanse the sac from obstruction; but I have not been told the means by which I shall accomplish this in spite of the powerful action of the retractor muscle. This being ineffectual, we have been advised to pass a style, as in the human being, into the duct; but I should be puzzled how to introduce this style, whether through one of the puncta, or through the orbicularis muscle, or by making a way for it through the lachrymal bone into the lower part of, or below, the sac; and I should be more puzzled still to make my patient, who would not do as I bade him, keep the style in its situation a single hour, much more the length of time necessary to insure the pervious state of the duct. I believe that you must leave the case to itself, paying attention only to cleanliness.

In the *dog*, however, and particularly in the smaller spaniel with the watery eye, fistula lachrymalis is of no unusual occurrence. You will recognise it by the small ulcer in the situation that I have described, with a constant, but perhaps slight, discharge of pus. Have nothing to do with that ulcer, for you will never heal it. You will gain most reputation by honestly saying at once, "I can do nothing here." There is even no palliative but cleanliness.

When fistula lachrymalis occurs in the horse, it is oftenest from fracture of the lachrymal or superior maxillary bone; but that can rarely happen in the dog, on account of the depth of muscle by which the parts are protected. In him, it arises from disease of the eye, or a naturally inordinate secretion of tears.

With regard to the *canalis infra-orbitarius*, or the long canal conveying the anterior maxillary nerve to form the *facial nerves*,

I will content myself with pointing out its situation and course from the hiatus at the tuberosity of the superior maxillary, to the upper part of the middle portion of the facial surface of that bone.

ON TWIN FOALS—OPENED JOINTS—GLANDERS—AND "THE VETERINARIAN."

By Mr. W. F. Karkeek, *V.S., Truro.*

"Ου πάνυ γὲ ῥάδιον ἔςῖν ευρειν ἔργον, ἐφ' ὦ σὔκ ἄν τις αἰτίαν ἔχοι."—Xenophon.

It is not easy to find any work in which some person may not discover a fault.

Bishop Fleetwood was never displeased at any position of his being controverted. "I write my own sense," said he, "as well as I can: if it is right, it will support itself; if it will not, it is fit it should sink." Agreeing in opinion with the right rev. prelate, I am obliged to those gentlemen who have taken the trouble to prove my statement (that a mare was never known to bring forth twin foals alive) incorrect: "Humanum est errare." If some of your correspondents were to express their opinions oftener on those subjects which appear as novelties in your publication, it would be far better for the interest of the science; for we are sometimes so fond of things connected with self, that we are apt to cry "ευρηκα" over a genius not yet found, nor ever will be discovered. We stand midwife to a gnat, and make as much noise as if a mule or an elephant had brought forth: "parturient montes," &c. &c.

I have been indebted to some of your correspondents for much useful information; and to some of them I now publicly avow my gratitude.

Palmam qui meruit ferat.

To Mr. Thomas Turner's excellent paper* on opened joints, I am indebted for a *sure, safe,* and in my belief, a *never-failing remedy* for wounded joints, when it is possible to apply the remedy according to Mr. T.'s directions. By following the plan he has so plainly laid down, I have succeeded in some of the most appalling cases; and so confident am I of its efficacy, that I would now undertake the most desperate case, without requiring any remuneration if I did not succeed in making a complete cure. In only one instance (for I have tried it on more than fifty) did anchylosis take place; and that was a mare belonging to an inn-

* Veterinarian, vol. ii, page 272.

keeper of this town; the joint was so completely laid open, that I could easily pass my finger between the two rows of bones of the knee-joint. There was a complete division of the extensor tendons, and one of the bones (the magnum) was fractured. For three months she was deprived of the power of extending her foot; but she now works regularly on a farm, and oftentimes carries her owner (a farmer, to whom she was sold for the purpose of breeding) to market, without shewing much lameness.

To P. B. P., an anonymous correspondent*, I am indebted for a very useful remedy for promoting the cleansing of cows, by the application of the chlorides of lime and soda. And to Mr. Proctor†, for a useful remedy in a very troublesome complaint; viz. the employment of cantharides, combined with other stimulants, in cases of "incontinence of urine." I wish I could also congratulate the Sub-Demonstrator of the College, Richard Vines, Esq., on the employment of cantharides in glanders. I gave his prescriptions a fair trial in several instances, but without success. He has taken much trouble to write his book; but, I fear, without much practical benefit to the profession. But "nil desperandum:" having entered the lists, he should not be foiled at the first onset, but, like a true knight (who, as Cid Hamet's hero says, "though I be vanquished to-day, I may conquer tomorrow"), let him reset his lance in rest, and venture another encounter.

We devise plans oftentimes for the production of good, not knowing, till experience may happen to teach us, that no good will arise. Inconsistencies are usually accompanied by an error in judgment, by an absence in thought, or by acting prematurely. We do not sufficiently bring ourselves under the guidance of reason.

> "Nunquam ita quisquam bene subducta ratione ad vitam fuit,
> Quin res, ætas, usus semper aliquid apportet novi,
> Aliquid moneat, ut illa, quæ te scire credas, nescias;
> Et quæ tibi putaris prima in experiundo ut repudies."
>
> *Terence*, Act V.

I beg to congratulate the Editors on the commencement of the fifth volume of THE VETERINARIAN. They have had, I believe, some up-hill work; a plenty of rubbish to remove; and they have still a plenty remaining; but they have only to exert their strength in proportion to its quantity, and success must and will crown their endeavours. "Magna est veritas et prævalebit." For the final triumph of truth is as sure as is the indisposition of

* Veterinarian, vol. ii, page 143. † Ibid, vol. ii, page 114.

the College directors to a too speedy reform: but ere long they will be compelled to acknowledge that they have been, for a long time, worshipping ignorance and empiricism in the garb of science, as Ixion embraced a cloud for a goddess; and, wishing them any other punishment than his,

I beg leave to subscribe myself,
Your obedient servant,
W. F. Karkeek.

ANATOMY OF THE HORSE.

[Continued from vol. iv, page 665.]

OF THE BLOODVESSELS.

There are two orders of bloodvesssls—*arteries* and *veins:* the former conduct the blood from the heart to all parts of the body; the latter return it therefrom back to the heart.

ARTERIES.

These vessels, in all their manifold ramifications, spring originally from two main trunks—the *pulmonary artery* and the *aorta:* the former sends its branches to the lungs; the latter to all the other parts of the body.

PULMONARY ARTERY.

A vessel of larger calibre than the aorta. It takes its origin from the postero-superior part of the right ventricle of the heart, winds upwards to the root of the left lung, and there divides into *right* and *left* pulmonary arteries; which divisions immediately enter the substance of their correspondent lungs, and therein ramify to capillary minuteness, the branches regulating their course and division by the ramification of the bronchial tubes.

AORTA.

This trunk, together with its manifold branches, may be compared (viewing them altogether) to a short, but straggling and very branchy shrub or dwarf tree of luxuriant but extremely irregular growth; and their number and ramification may be pictured to the mind, by remembering that no organized part of the body is without few or many of them.

TABLE OF ARTERIES.

- AORTA
  - Anterior Aorta
  - Posterior Aorta
- Anterior Aorta
  - Right Arteria Innominata
  - Left ditto
- LEFT ARTERIA INNOMINATA
  - Dorsal
  - Posterior Cervical
  - Vertebral, *forming* the Basilar
    - Post. Cerebral
    - Ant. Cerebral
    - Post. Cerebral
    - Circular Arteriosus.
  - Internal Pectoral
  - External Pectoral
  - Inferior Cervical
  - Axillary
    - External Thoracic
    - Internal Thoracic
    - Dorsalis Scapulæ
    - Subscapular
    - Humeral
      - Ulnar
      - Spiral
      - Radial
        - Small Metacarpal
        - Large ditto
      - Large Metacarpal
        - External Plantar
        - Internal ditto
      - Plantar
        - Perpendicular
        - Transverse
        - Artery of the Frog
        - Lateral Laminal
        - Circular Arteriosus
          - Ant. Laminal
          - Inf. Communicating
          - Circumflex . . : Solar

The Right Arteria Innominata sends off branches correspondent to those on the left side; and, in addition, the

- Common Carotid
  - Right Carotid
  - Left ditto
    - External Carotid
    - Ramus Anastomoticus
    - Internal Carotid
- External Carotid
  - Submaxillary
    - Ascending Pharyngeal
    - Pterygoid
    - Lingual . .
      - Ranine
      - Sublingual
    - Inferior Labial
      - Buccinator
      - Angular Oral
    - Facial . .
      - Masseter
      - Buccal
      - Sup. Labial
      - False Nasal
  - Parotideal
  - Int. Pterygoid
  - Post. Masseter
  - Post. Auricular
  - Temporal
  - Ant. Auricular
  - Int. Maxillary
    - Deep Temporal
    - Palatine
    - Inf. Maxillary
    - Supra-Orbitar
    - Ocular
    - Infra-Orbitar
    - Palato-Maxillary

- Ramus Anastomotecus } Occipital
  - Dura Matral
  - Temporal
  - Nuchal
- Internal Carotid
  - Arteria Communicans
  - Anterior Dura Matral
  - Anterior Cerebral . . . < Ophthalmic
  - Middle Cerebral
  - Lateral Cerebral

POSTERIOR AORTA
- Thoracic Division
- Abdominal ditto

- Thoracic Division
  - Bronchial
    - Right Bronchial
    - Left ditto
  - Esophogeal
    - Superior Esophogeal
    - Inferior ditto
  - Intercostals
  - Phrenic
- Abdominal Division
  - Cæliac
    - Splenic
      - Pancreatic Branches
      - Splenic ditto
      - Left Gastric
    - Gastric
      - Superior Gastric
      - Inferior ditto
  - Hepatic
    - Pancreatic Branches
    - Duodenal
    - Right Gastric
    - Right and Left Hepatic
  - Ant. Mesenteric
    - Duodenal Branches
    - Small Mesenteric
    - Cœcal Branches
    - Ant. Colic ditto
  - Renal . . . .
    - Right Renal } External Branches
    - Left ditto } Capsular Renal
  - Spermatic < Right and Left
  - Post. Mesenteric
    - Post. Colic
    - Rectal
  - Lumbars—Five or Six Pairs

Bifurcation of the Posterior Aorta into External and Internal Iliac Arteries.

- External Iliac
  - Artery of the Bulb
    - Umbilical
    - Vesical Branches
    - Prostatic
    - Anal and Perineal Branches
  - Obturator
    - Arteria Innominata
    - Foraminal Branches
  - Ischiatic
  - Pubic
  - Int. Pubic
    - Branches to the Crus Penis
    - Ditto Corpus Cavernosum
    - Ditto Dorsum Penis
    - Ditto Glans Penis
    - Cutaneous Branches

The Middle Sacral comes from the Bifurcation of the Trunk.

- Internal Iliac
  - Circumflex *of the Ileum*
  - Artery of the Chord
  - Arteria Profunda
  - Epigastric
    - Branch to the Groin
    - Branch to the Ring
    - Ext. Pudic
  - Femoral
    - Inguinal
    - Muscular Branches
    - Stifle ditto
    - Muscular ditto
    - Popliteal
      - Recurrent
    - Anterior Tibial
      - Recurrent Articular
      - Muscular Branches
      - Cutaneous ditto
      - Metatarsal Branches
        - Recurrent
        - Ext. Plantar
        - Int. ditto
      - Metatarsal Artery
    - Posterior Tibial
      - Muscular Branches
      - Medullary
      - Tarsal
      - Int. Metatarsal
        - Recurrent.

THE INTELLECTUAL PRINCIPLE IN THE HORSE.

To the Editors of "The Veterinarian."

To what extent the *mind* of man influences the diseases to which his body is subject is no less concealed from our view than is the connexion or *modus operandi* subsisting between the one and the other; but we know the influence to be great, and of such importance that, in the successful treatment of disease, the mind of his patient oftentimes becomes no less the concern of the medical practitioner than his body. To throw a popular illustration upon this, now that *cholera* is "all the rage," inquire how many hundreds, nay, thousands, of persons are running about with camphor-bags in their breasts, and cajeput oil in their pockets, to guard themselves against the attack of that unsparing death-hunter; and then seriously put the question to the first surgeon you meet, What real anti-infectious property resides in this camphorated atmosphere? The bearer of the amulet is himself persuaded that there is very much virtue in it; and through the force and continuance of that self-persuasion, it is that he derives all his insusceptibility to catch the cholera. For it is, after all, a fact, and a medically unexplained one, that the person who has faith in his camphor-bag is less liable to take disease than one whose mind is not fortified with any such superstition.

If there be one subject more entertaining than another—and let me add, Messrs. Editors, if there be one on which you and your various correspondents seem to have thought less than on

another, it is the subject of *mind or reason in animals.* Do not imagine, however, from this prologue, that your humble servant is going to present you with a dissertation thereon: no, no;—that must come from other and abler hands. In the meantime, by way of elucidation, let me throw a few loose observations connected therewith into your journal.

I once was called to attend a case of ordinary spasms of the bowels, the subject of which was lost entirely from the uncontrollable influence of *mind* or *temper* (or whatever you please to call it) over body. The dread this horse had for any thing in the shape of medicine or operation, rendered every attempt, even to the last, to administer remedies in anywise efficaciously, quite and altogether ineffectual. Although he was a subject, both from age and condition, well able to bear the loss of a large quantity of blood, yet every effort to extract more than two quarts from him (and that only after repeated attempts) totally failed. No sooner was he struck by the phleam—nay, hardly was his head held up for the purpose—than he was seized all over with shivering, and would commence panting at the flanks, and reel and stagger about as if gallons of blood had already flowed from him: under which sense of fear and faintness, we were compelled to desist, and subsequently relinquish the intended detraction of blood, pin the neck up, and release him again; and in the course of a few minutes all trembling would subside, and the symptoms of gripes (which were not very violent) would be renewed. In the same manner was I foiled in every subsequent attempt at phlebotomy. The administration of medicine he obstinately opposed. A ball he would not and could not be made to swallow; and he employed seven men in forcing liquid into his stomach: but although the latter was accomplished, the efforts at repulsion were such, that no benefit seemed to be derived from it. In fact, this animal, strange as it may appear, died a martyr against the cause of physic.

Both in horses and men, such is the influence of the mind under certain circumstances, that it takes away the desire for food, and that even in a state of health. A man separated from those he loves, a horse segregated from his associates and confined alone, will refuse his food, and pine and fall away in flesh. Restore him to his companions, and he will cease to fret, and will recover his appetite. Here is an example, then, of the necessity of the *veterinary* surgeon directing his attention to the *mind* of his patient.

A horse suffering from a sinuous and painful fistula in the withers, of long duration and extensive depth, and for which he had had on very many occasions applied sharp escharotic dress-

ings, would, every time the usual preparations were made to dress his sores, stale most profusely, and tremble, and otherwise evince the dread he had of submitting to the operation.

Horses that are very troublesome, and even impracticable to be shod in the ordinary way, will very often submit quite tamely and quietly to the operation on being blindfolded. There is something in the *sight* of the smith or his apparatus which offends; and the spectacle is prevented by the blinds.

To conclude an article, which the experience of some of your correspondents could (and I hope will) very much add to, I have been told of a proprietor of hounds and an ample stud, who chooses his hunters with *plain large heads.* His reason for which is, that such horses in general possess a ken beyond other or smaller and handsomer heads. To this I may add, that I know a gentleman of no mean celebrity on the turf, and of acknowledged skill in racing matters, who lays out large sums for other people as well as himself, and who (as far as concerns the animal itself) pins his faith on the size and shape of the horse's head, and the contour and expression of the countenance, rather than upon "make and shape." And, by way of *finale,* I must confess myself, that I like a horse with what is called "a plain head," providing it be not a very large ugly concern. Perhaps you, gentlemen, or some of your correspondents, will make public your sentiments on the subject. In doing which you will much gratify your humble servant,

INQUISITOR.

ON HEPATITIS.

By Mr. JOHN TOMBS, *V.S., Bengal Artillery.*

Nov. 4th, 1829.—A LARGE black horse, belonging to the riding establishment at Dum Dum, near Calcutta, was reported sick. The farrier informed me, that when the horse was first attacked in the morning, he lay down two or three times, and made an unsuccessful effort to roll. He thought the animal was griped, consequently gave him a ball composed of common turpentine and nitre, and took eight pounds of blood from the neck. I saw the horse in the afternoon, when the following symptoms were indisputably manifest: viz., pulse 60, and extremely soft; respiration laborious; eyes slightly tinged with yellow; mouth dry, hot, and of a livid colour; urine voided frequently, which produced pain and uneasiness; excessive thirst; costiveness. The animal being in a state of plethora, and in high condition, I ordered the farrier to subtract sixteen pounds of blood from

the jugular vein, administer a bottle of castor oil, and stimulate the extremities with turpentine liniment.

5*th.*—Pulse 65; great degree of costiveness; eyes and mouth of a saffron colour; considerable tension of the right hypochondrium. The animal is uncommonly stiff.

When pressure is applied to the region of the liver, it produces pain and irritation. I was satisfied that the animal was labouring under an acute inflammation of the liver. The oil that was exhibited yesterday has not operated. Two drachms of aloes and one of calomel were made into a ball, and exhibited. Injections had recourse to.

6*th.*—Patient no better; pulse 70. Fæces extraordinarily hard, and covered with mucus. Venesection six pounds; warm clothing: injections: extremities stimulated and bandaged; a rowel inserted under the thorax, and the region of the liver blistered.

7*th.*—Pulse increased in frequency; intestines obstinately constipated; a troublesome cough; loss of appetite, &c. Injections to be continued; the aloes and calomel to be given as before; gruel, &c.

At 4 P.M. purging commenced; appetite slightly improved.

8*th.*—Costiveness has again taken place; appetite worse; pulse 64; tongue surprisingly furred; eyes and mouth yellow. Extremities enormously swollen from the effects of the stimulants that were applied. Give three drachms of aloes and a drachm and a half of calomel; the extremities to be washed with tepid water.

9*th.*—Bowels not open, but the fæces are now exempt from mucus. Pulse quick; the animal is hot and feverish. Give two drachms of aloes and one of calomel.

10*th.*—Patient appears lively and disposed to feed; pulse 50; voids his fæces and urine with tolerable facility; evinces slight pain when pressure is applied to the sides; bowels not relaxed. Give aloes and calomel as before; injections continued; rowel dressed, &c.

11*th.*—Patient better; bowels relaxed. Fearing that constipation may return, I ordered the farrier to administer four drachms of aloes.

12*th.*—Patient in a state of convalescence; bowels open; appetite improved; pulse 48. The eyes and mouth have regained their natural colour: regimen, mashes.

13*th.*—Patient amazingly improved from the effects of hepatitis, but unfortunately the jugular vein is highly inflamed and swollen where the lancet was introduced. In the afternoon profuse hæmorrhage took place: the farrier being at the hospital, pinned up the orifice; the bleeding still continued: he reported

the circumstance to me; I immediately proceeded to the hospital, and applied the actual cautery to the orifice, which soon suppressed the bleeding. I afterwards had an adhesive plaister applied to the part affected, and ordered the animal's head to be tied up, and to have nothing but gruel.

14*th.*—Patient going on exceedingly well.

15*th.*—The adhesive plaister came off last night. This morning the orifice is filled with *maggots;* I had them removed, previously killing them with oil of turpentine: the wound was washed with a solution of zinc.

17*th.*—Sloughing has taken place: the orifice looks healthy. Solution of zinc used as before.

19*th.*—The orifice is healing rapidly.

24*th.*—Depurative process nearly complete.

30*th.*—The orifice is now healed, and cicatrization is going on.

Dec. 4*th.*—Discharged from the hospital stable, perfectly recovered.

ON THE USE OF THE CROTON TIGLII.

By Mr. W. Chadwick, *V.S., Hot Wells.*

To the Editors of "The Veterinarian."

Gentlemen,

It is now two years and a half since I left the Veterinary College, during which time I consider I have had my share to do in my profession, assisted by the practical advice of my uncle, of more than forty years' experience; although, not keeping a forge, I do not make so public an appearance as I otherwise should. During a great part of that period I have been a constant subscriber to "The Veterinarian," and have at times been surprised not to see any notice or treatise, however concise, on the general good effects of *Croton* as a purgative for horses. If my opinion be admitted, in the hope of benefitting the profession or patient, or both, my present aim is obtained. I became prejudiced in its favour, while at college, in many cases over aloes; and, with only two exceptions, have invariably followed up that prejudice with *great and good result.* I can state with truth, that I have administered it in cases with success where aloes is prohibited on account of it great irritating quality. I have given it in enteritis, and only three weeks ago in pneumonia, with the happiest result. If I am sent to for a dose of physic, I always make up a croton ball. I have given it to draught, carriage, saddle horses, and ponies; but it is to be remembered, that we can as easily get bad croton as we can bad aloes: it is now eighteen months since I

sent to London for two pounds; and its effects are equally as good now as when I first had it. Another consideration is, its comparative cheapness over aloes, as five grains are equal to one drachm of good aloes. I have given forty-five grains to a large horse, which would have taken nine drachms of aloes, and which operated freely in fifteen hours. I average forty grains for a carriage or gig horse; thirty-five grains for a saddle horse; and in proportion downwards; other circumstances, of course, taken into consideration, which need not be repeated to the veterinary practitioner.

The simple facts I now state are the result of practice; and should they stimulate any of the profession to put what I have advanced to the test, I rightly anticipate the result. The main object is, to get *good* croton powder; which should be rather *coarse*, and of a light brown colour; as it is the croton seed bruised after the oil is expressed. After it has been fairly tried, it will, I am confident, frequently supersede aloes.

In administering purgatives, I am a firm disciple of Mr. Blaine, and invariably give *mild* rather than full doses; and as with aloes so with croton: if a dose of croton physic becomes "set" in eight or ten hours after it commences operating, I am generally satisfied; though that is not the case with many of the profession: but the object is then obtained, without leaving that debility which invariably follows strong aloetic purges.

Should this be worth insertion in your next VETERINARIAN (and I leave it to your better judgment), I hope it will be fraught with some good. With best wishes for the welfare of the profession, and the extension of circulation of THE VETERINARIAN,

I remain, your's respectfully,

W. C.

A CASE OF SINGULARLY ENLARGED TUMOUR IN THE ABDOMEN OF A HORSE.

By Mr. W. PERCIVALL.

A TROOP horse was admitted into hospital on the 29th of September last, for a reported "cold." He was at the time "off his feed," and heavy and dull in aspect; he never having been a very *lively* animal, however, this change was not so remarkable. His pulse indicating inflammatory diathesis, though the respiration was not discoverably altered, eight pounds of blood were drawn, and some aperient (aloetic) medicine ex-

hibited. No other symptom made its appearance during the three weeks that he remained in hospital. His appetite amended; his spirits gradually returned; and he was discharged "convalescent," to take walking exercise daily, and be well looked after.

A fortnight afterwards he was brought again with a complaint of "not doing work," and failing once more in his appetite. He had the same dull listless appearance as on his first admission. His pulse was sixty-five; his coat rough and arid; his flanks tucked up; his eye downcast; his mouth and tongue dry, and preternaturally hot. I prescribed venesection as far as a gallon of blood, and a return to laxative, not actively purging medicine. As soon as the bowels had been gradually relieved, he grew better; he ate with amended appetite; his pulse softened, and lowered to sixty; moisture returned to his mouth; and he recovered much of his lost spirits again. Three or four days from this time, his bowels having in the interval relapsed into a degree of constipation to which I now found them rather disposed, he again grew dull, lost his appetite, and had relapse of his lingering febrile affection. It was at this period that was first discovered abdominal uneasiness, indicated by the litter being found scraped up in a heap from pawing, and from a slight attack of "gripes," which the man said he had had since my last visit. I renewed the laxative medicine, combined with calomel, and had a blister applied to the entire surface of the belly. This was followed by much relief; indeed, so greatly did my patient rally after this, both in his spirits and appetite, that I began to entertain hopes that the disease (whatever it might be) was giving way. This delusion, however, to my regret, did not last long. The bowels became confined again on the discontinuance, even but for a day or two, of opening medicine; attacks something similar to gripes (though very slight) became more frequent; and in the intervals he would lie down much: indeed, throughout the course of his disorder, he always evinced much disposition to lie down, day as well as night.

Latterly, in addition to a repetition of blisters and the insertion of a rowel, I gave him daily,

Calomel	ʒss
Digitalis	ʒss
Purging mass	ʒj.

During its exhibition he experienced a more painful attack of his symptomatic "gripes" than had occurred before; and it was this paroxysm that ushered in his death. Indeed, for some time past he had been so evidently wasting away in flesh, particularly about the quarters, that hope of recovery seemed to me to be now

all but extinct. I at one time detected some little œdema of the sheath (the only time and place where he ever shewed œdema), from which I began to suspect the presence of ascites. My mind, however, was quite relieved of this suspicion by examination of the belly, which I found not larger than natural; nor had it grown larger during his illness, even by the admeasurement of the roller which he had worn ever since his last admission.

The attack of abdominal irritation he had on the day prior to that of his death, I parried and subdued by laudanum, followed up by an opening draught. It was renewed the next morning, and I ventured to abstract one quart of blood; and it seemed to relieve a symptom now for the first time become not only observable, but even urgent; viz. a disturbed respiration: the pulse had sunk even to imperceptibility, but rose again after the quart of blood had flowed. He lived six hours after this, lying down and groaning, rising again and panting at the flanks; until at length he fell, and died without a struggle.

Post-mortem Examination.

The thoracic viscera healthy; the liver clay-coloured; the stomach distended with air, with its interior healthy; the small intestines exhibiting patches of intense peritoneal redness; the larger healthy. A tumour, weighing from twenty-five to thirty pounds, was found attached round the root of the anterior mesenteric artery, of a flattened, rounded form. On making an incision into it, one enormous irregular cavity appeared, filled with a grey-coloured fluid of a purulent character, with much flocculent caseous matter floating in it and thickly deposited on the walls of the cyst, and having a peculiar, sour, pungent, fœtid smell. The parietes of the cyst were of a variable thickness, and of a fibro-cartilaginous structure; and two large, distinct, and beautifully contrived bands, more than an inch in diameter, with numerous reticulated smaller ones, ran across it for the purpose of strength.

NOTICE OF ERRATA.

By Mr. Charles Dickins, *V.S., Kimbolton.*

The object of these lines is to beg of you to correct a few errors made by your printer as connected with my last communication, which you have done me the honour to insert in your intelligent publication; but which, as they now stand, are calculated to make me appear ridiculous. The first of which is, you make me to say the umbilical veins were not affected; but I hope you will

preventing, after a limited time, any persons practising farriery give me credit for knowing as much of anatomy as that there is but one umbilical vein; and I think, on referring to my letter, you will find it so stated. The next is, I stated most distinctly the disease in *calves*, whereas you state in cattle, which makes my treatment appear mild beyond measure; for what practitioner would think of administering the minute doses there prescribed, or would not push his depletive measures to a greater extent in a full grown animal?

With every good wish, believe me,
Your's truly,
C. D.

FARRIERS' TREATMENT OF PNEUMONIA.

Extract of a Letter from Mr. James Cowie, *V.S., Hackerton, Lawrence Kirk.*

I was lately consulted respecting a valuable horse, evidently labouring under pneumonia. A farrier had been called in, who bled the horse to about four pints, and purged him briskly with castor oil, having given him in the course of two days three bottles full. No further bleeding took place, but half-drachm doses of calomel and opium were given twice a-day.

When I saw him, he was fast travelling the road on which this scientific treatment had directed him: the pulse was 100, with other corresponding symptoms. I feared that it was a lost case, but the owner was anxious that something should be done. I took away two pints of blood—he would not bear more, and blistered his sides, and gave him a ball composed of digitalis, nitre, and emetic tartar; but before the time arrived for the exhibition of another ball, he was dead.

THE CARNIVOROUS HORSE.

Extract of a Letter from Mr. W. Garland, *V.S., Wakefield.*

I was requested to attend a horse, a few days ago, belonging to Mr. Mellings, of Wakefield. While I was in the stable, the groom asked me, "Did you ever see a horse eat meat?" I replied that I never did. He immediately brought into the stable about a pound of beef and the same quantity of bacon. The beef was roasted, but the bacon was raw. He just warmed the bacon a little. I then took the horse out of the stable, while he put the beef and bacon in one corner of the manger, and a feed of corn in

the other. I then brought him back, and put his nose to the corn; but he smelled the bacon, and immediately darted at it, and ate it greedily up. He then ate his corn. The groom informed me that he will finish the bone of a leg of mutton in a few minutes, and that roasted meat is his favourite dish.

THE ESTABLISHMENT OF THE VETERINARY COLLEGE.

To the Editors of "The Veterinarian."

Gentlemen,

Although I am not, in your *slang* language, a "Vet," I am a lover of horses, and a proprietor of cattle; and, perhaps, feel almost as interested as yourselves in the improvement of your art.

In the early part of your last volume you inserted a lengthy, yet interesting account of the establishment of the St. Pancras School. I do not, however, think that you, or rather the author of the book from which you quote, have done justice to the real founders of that institution. Much praise is due to the public-spirited individuals, whether medical or simply amateurs, who came forward with their patronage and their money; but you have somewhat slurred over the exertions and the services of the Odiham Agricultural Society, with which, in fact, the whole business originated, and by whom alone it was nourished into infant life.

You say that in August, 1785, the Odiham Society first took the subject into consideration, and that from that time to May, 1788, nothing was done by them. You are doubly inaccurate in that assertion. Old, and family, and perhaps *personal* recollections, have in a manner bound me to your profession, although not a member of it. I glory in your *now* rapid progress towards that actual state of science, and rank in society, which you should possess.—Go on and prosper.

Influenced by these feelings, I must not have the merit of your parents, and the gratitude due to them, quite monopolized by your nurses, excellent and industrious as they were. I therefore send you the proceedings of the Odiham Society, so far as they have reference to you.

Agricola.

Odiham Society, 29th July, 1785.

Resolved, That farriery is a most useful science, and intimately connected with the interests of agriculture; that it is in a very

imperfect, neglected state, and highly deserving the attention of all friends of agricultural economy.

That farriery, as it is commonly practised, is conducted without principle or science, and greatly to the injury of the noblest and most useful of our animals.

That the improvement of farriery, established on a study of the anatomy, diseases, and care of animals, particularly of horses, cows, and sheep, will be an essential benefit to agriculture; and will greatly improve some of the most important branches of national commerce, such as wool at least.

That the Society will consult the good of the community in general, and of the limits of the Society in particular, by encouraging such means as are likely to produce the study of farriery upon rational and scientific principles.

That it be referred to the meeting in October to consider what means may be most likely to encourage the study of scientific farriery.

That it be referred to the same meeting to open a voluntary subscription to forward such means as may be thought most likely to promote the study of scientific farriery.

Odiham Society, 19*th August*, 1785.

This was the last of the meetings of the Society for the session. The subject was adverted to, and somewhat discussed; and before adjourning the meeting, the chairman thus addressed the members:—" It is remarkable, that when so much pains have been taken to improve the breed of horses, cows, and sheep, that the health of these animals should have been so much neglected. That although premiums have been offered by agricultural societies for the remedy of particular diseases, no proposal has been made systematically that went to the whole profession: in short, that no means have yet been taken to rescue the profession of farriery, taken in its most extensive sense, from the hands of men who are uneducated and uninformed; and who, from the very nature of their circumstances, are unable to make a proper use of their own experience; for the very best farrier, who is destitute of medical knowledge, and medical analogies, and the science of relative symptoms, is unable to apply his own experience to new cases, and is in danger of confounding symptoms that are totally different, and of neglecting indications that point to the same remedies."

He asserted that a more systematic knowledge of the management of sheep and cows would add greatly to the health and growth of these animals, and improve the quality of the raw ma-

terials for manufacture with which these animals supply us, and which form so valuable a part of the staple riches of the country.

Odiham Society, Dec. 6, 1785.

Resolved, That the propositions of the last meeting for promoting the study of farriery, upon rational scientific principles, and opening subscriptions for different funds, have been taken into consideration; and that the further consideration of the said propositions be deferred until the general meeting next after the anniversary.

Other subjects now occupied their attention, and a slight difference of opinion took place in the Society. The subject, however, was frequently and anxiously discussed; but it was not until May, 1788, that they determined to solicit subscriptions to send some young men to be educated in the veterinary schools in France. Much as the interest of the agriculturist was concerned it was difficult to rouse him to a proper sense of it; and another year elapsed before they were enabled, or dared to bring the thing in a tangible form before the public.

Their resolutions afterwards, which I enclose, in addition to those which you have inserted, do them honour, and especially the last, in which, after having laboured so long, and almost unsupported, they commit the management of the completion of their work to other hands, and to whom also they seem to be willing to resign all the merit of it.

Odiham Society, Aug. 5th, 1789.

Resolved, That for the complete establishment of farriery, on rational and scientific principles, in this country, such institutions for education in farriery are necessary as have been established in France, Germany, Piedmont, Sweden, Denmark, &c.

That, till such institutions be established, the following objects are principally necessary towards the improvement of farriery:—

1. To send some intelligent lads for education in farriery to such places in which good schools are already established.

2. To collect, by premiums and otherwise, exact descriptions of remarkable cures of diseases in horses, cows, and sheep, properly authenticated; descriptions of the dissections of the diseased parts of horses, cows, and sheep, &c.

3. To provide, under parliamentary authority, some means of placing the profession of farriery, even as now practised, on a more respectable footing than it is at present; such as by preventing farriery being practised except by licensed farriers; by

who has not served seven years' apprenticeship under a licensed farrier, &c.

Resolved, that an advertisement be inserted in the Reading, Winchester, Romsey, and Salisbury papers, and in the Racing Calendar, Morning Post, and World, notifying the Society's intention of sending, in the course of the ensuing spring, two boys to the farriery school at Charenton, near Paris, and inviting such parents as may approve the views of the Society to make their applications to the Society, by letter directed to the secretary at Odiham, or the committee in London.

That a committee be appointed in London to receive all applications for premiums to be proposed for collecting descriptions of cures, and dissections of diseased horses, cows, and sheep; to determine the said premiums; to collect such intelligence as may be necessary towards an application to parliament for rendering the profession of farriery more respectable to its professors, and more useful to the community; and to communicate to the committee, at Odiham, whatever may appear to be conducive to the views of the Society for promoting the improvement of farriery.

That the committee be empowered to offer, in the name of the Society, premiums for exact descriptions of remarkable cures of horses, cows, and sheep; dissections of diseased parts, &c. &c.

That Mr. Huntingford, late secretary to the Odiham Society, and now resident in London, be appointed secretary to the committee at their meetings in London.

The secretary reported, that Monsieur Vial de St. Bel had presented ten copies of a plan for establishing an institution to cultivate and teach veterinary medicine, to the use of the members of the Society.

Odiham Agricultural Society, November 18, 1790.

The Odiham Agricultural Society, having appointed a committee to meet in London, for the purpose of forwarding the intention of the Society towards the improvement of farriery, by collecting from men of experience and practical knowledge, well authenticated facts relative to the diseases of horses, cows, and sheep, their treatment and cure; the committee have agreed to offer the following premium:—

For the best collection of cases (not less than twenty) of the disease in horses called the glanders, with the treatment and cure, an honorary premium of ten guineas value: the cases to be sent to the secretary, at No. 10, Welbeck Street, Cavendish Square, on or before the 6th day of January, 1791, without names, or intimation to whom they belong, marked in what manner each

claimant thinks fit; such claimant sending his certificates, properly authenticated, sealed up in a paper, having on the outside a corresponding mark with the cases.

The committee will meet at the Blenheim Coffee-house, Bond Street, on Wednesday, the 12th day of January, 1791, at six o'clock in the evening, at which time all the members of the Odiham Society are requested to attend.

The cases for which the premium shall be adjudged to become the property of the Society; and the others returned, if demanded, or destroyed at some future meeting of the committee, with the certificates, unopened.

Odiham Society, Jan. 12, 1791.

At a meeting of the committee appointed by the Odiham Agricultural Society, to meet in London, and held at the Blenheim Coffee-house, New Bond Street, on the 12th of January, 1791,

It was unanimously resolved,

That the immediate objects of the Society are to establish a fund, by subscription, for collecting, by premiums, well authenticated facts relating to the diseases in horses, cows, and sheep; their treatment and cure; for establishing an extensive communication with foreign veterinary societies; for the speedy and general circulation of such memoirs on the diseases of horses, cows, and sheep, as may be communicated to the Society; for providing a building as an hospital for diseased horses, cows, and sheep; and for promoting the science of farriery, by regular education in it, on medical and anatomical principles.

That an advertisement be forthwith inserted in the public papers of the Morning Post, and English Chronicle, for the purpose of soliciting subscriptions towards the several beforementioned objects of the Society.

That a circular to the same purpose be sent to all noblemen, gentlemen, and others, who may be thought most likely to be interested in the improvement of farriery in its several branches.

That the thanks of the Society be given to Sir William Fordyce, and M. Vial de Saint Bel, for their memoirs on the diseases in horses, called the glanders; and to Mr. Charge, for his letter on the same subject; also to Mr. Taplin, for the present of his publication, intituled "The Gentleman's Stable Directory;" to Mr. Prosser, for the present of his treatise on "The Strangles and Fevers of Horses;" and to Doctor Simmons, for his politeness in advertising the premium offered by the committee on the cover of his Medical Journal.

That no claims for the premium, offered by the committee for the best collection of cases of the diseases in horses, called the glanders, having been delivered in within the term prescribed, the same premium be continued on the following conditions, viz. "For the best collection of cases of the diseases in horses called the glanders, with the treatment and cure, consisting of twenty cases, or such a number as the committee shall judge to be sufficient to establish the fact, the treatment, and the cure, ten guineas, or an honorary premium of the same value."

That the like premium be offered for the best collection of cases of the disease in sheep, called the rot, consisting of twenty cases, or such a number as the committee shall judge to be sufficient to establish the fact, the treatment, and the cure.

The cases for each premium to be sent to the secretary, at No. 10, Welbeck Street, Cavendish Square, at least a week before the King's birthday, in June next, without names or intimation to whom they belong, marked in what manner each claimant shall think fit; such claimant sending his certificates properly authenticated, sealed up in a paper, having on the outside a corresponding mark with the cases.

The cases for which the premium shall be adjudged, to become the property of the Society; and the others returned, if demanded, or destroyed at some future meeting of the committee, with the certificates unopened.

Odiham Society, April 26, 1791.

Resolved, That the Veterinary College, in London, being, by its establishment, enabled effectually to execute what the Odiham Society have so long had in view, and which it was their wish to accelerate, by the appointment of their committee in London; the Society relinquish their original intentions towards a public institution for the veterinary art, and all other concern in its general improvement, except what may occasionally be done by local and provincial premiums and inquiries. They beg, therefore, permission from those noblemen and gentlemen, who have given their names to the secretary, as contributors to the farriery fund, to transfer their names, as benefactors or subscribers, to the Veterinary College.

The Odiham Society afterwards presented the Veterinary College with an excellent agricultural and professional library, from which, I doubt not, the pupils continue to derive much benefit.

AGRICOLA.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE IV.

The Nostrils and the Schneiderian Membrane.

The Nostrils.—THE nasal cavity on either side gradually diminishes anteriorly, and at length terminates in an irregular ovoid orifice on either side. The triangular spaces between the nasal and anterior maxillary bones are filled up by elastic cellular substance and integument, and which are supported by these bones, and by two cartilages on each side. The face gradually diminishes towards the lower part. The broad muzzle of the ox would be an unsightly termination of the face of the horse; in consequence of this, the external nostrils are correspondingly small, and they seem barely large enough for the purpose of quiet and undisturbed breathing. But we often exact from the horse a great and a cruel exertion of speed, accompanied by a corresponding expenditure of animal power, and this demanding an equivalent supply of arterial blood, and that to be obtained only by a proportional admission of air into the lungs.

The apparently contracted nostril of the horse would not admit of sufficient air to arterialize the blood, and support the rapidly-exhausted contractility of the over-worked muscular fibre, were there not a beautiful apparatus of soft distensible parts, and cartilage and muscle, occasionally to expand the nostril, and admit the increased quantity of air which the animal may demand. Attached to the soft parts composing the nostril, are several powerful muscles, which serve to expand these orifices; and there are two cartilages on each side, which, while they admit of the expansion of the nostrils, restore them again to their natural dimensions by their inherent elasticity. The cartilages are attached to and supported by the points of the nasal bones. There are two larger ones superiorly, and two smaller and lunated ones below. They give form to the nostril in the natural state of breathing, and likewise in the act of increased respiration, and, the muscular power which dilated them ceasing to act, they bring the nostrils back to their original dimension and form.

The Muscles of the Nostrils.—The principal muscles concerned in expanding the nostrils are the *transversales* (*dilatatores nasi anteriores*), that can scarcely be said to have any proper origin, for they are bound down on the point of the nose, and are inserted into each of the cartilages. When they act, they draw these

cartilages towards the centre of the nose, and so expand the nostril in that direction. These muscles are not found in the hog, to whom they could be of very little use. Then there is the *dilatator lateralis*, proceeding from the point of the ridge of the superior maxillary, and inserted on the outer side of the nostril. This muscle will draw the side of the nose outwards and backwards, and so dilate the nostrils outwardly. Both these muscles acting together, and dilating the nostril both outwardly and inwardly, will very considerably enlarge the external orifice. The dilatator lateralis is an exceedingly powerful muscle in the hog, to give flexibility to his nasal spade. The absence of the former, which could scarcely be useful to this animal, and the extraordinary size and strength of the other, are pleasing illustrations of the adaptation of animals to their situation and destiny. Another muscle, the *nasalis longus*, comes from the union of the superior maxillary and malar bones, and is partly inserted into the false nostrils and dilates them.

The False Nostrils.—These are singular contrivances. They are duplicatures of the skin, but thinner and more flexible; they are blind pouches or bags which fill up the lower side of the nostril. Their use has never been satisfactorily explained. In some measure they give additional expansion to the nostril; but, when examined more closely, they serve, and particularly in laborious breathing, and, when the current of air would be exceedingly strong, to divert it from the superior meatus, the peculiar seat of smell, and the most sensitive part of the nostril, and where its violence might be injurious, and to direct it into the lower meatus, whence it will more readily find its way to the trachea and lungs.

Another muscle by which the nostrils, both true and false, are expanded, is the *levator labii superioris alæque nasi*, from the superior portion of the nasals, and even from the frontal bones to the upper lip, and to the skin of the nose, and the false nostrils. This muscle is not found in the hog, for in the construction of his muzzle it would be powerless.

The *nasalis brevis* is a triangularly-shaped muscle, occupying the unattached sides of the nasal bone, and of the opposite and corresponding border of the anterior maxillary, and connected with the whole of the interposed substance of the soft nostril; evidently tightening this substance, and so somewhat enlarging the orifice of the nostril, but more employed in supporting it, and preventing it being too much dilated. This is a muscle of little development and power in the *sheep* and *hog*, and not found in the *dog*.

All these muscles are employed in dilating the nostrils, and, in rapid progression, they have as much as they can do to dilate

them sufficiently. Where are the antagonists? we find them only, and we find them of sufficient power, in the elasticity of the soft nostril generally, and more especially in that of the cartilages.

The difference of the Nostrils in different Breeds of Horses.—All these parts are more developed, the cartilages are larger, the integument is thinner, and more flexible, and the muscles are more powerful in proportion as the horse is formed for speed. There is not a more marked characteristic of the blood-horse than an expanded nostril. There is scarcely a more interesting object than his dilated nostril when he is sufficiently excited but not overblown; on the contrary, there is nothing so painful to observe as the spasmodic dilatation of the nostril, and the painful working of every muscle when the horse of no blood is pushed beyond his natural power. If you have ever contemplated the sudden lightening up of the countenance of the hunter, when his ears become erect, and his nostrils dilate as he first hears the cry of the hounds, and snorts and scents them afar off, you will be aware of the beauty and the use of an expanded nostril. Take the first opportunity of comparing together the confined nostril and thick skin, and quantity of cellular substance about the muzzle of the cart-horse with the far wider and more flexible one of the blood-horse.

The inhabitants of some countries were accustomed to slit the nostrils of their horses, that they might be less distressed in the severe and continued exertion of their speed. The Icelanders do so at the present day: but there is no necessity for this, for nature has made ample provision for all the ordinary and even extraordinary exertion we can rationally require from the horse according to his breed and character.

The muzzle of the *ox*, not designed for speed, and incapable of the continued exertion of it, offers a singular contrast, especially connected with the different function of the upper lip in that animal, viz. firmly to hold the food until it is torn off, not perfectly cut, by the pressure of the lower incisors against the pad which supplies the place of teeth in the upper jaw. In the sheep and swine no provision is made for speed; but as I have already observed, it is secured in the dog, by the expanded and circular aperture of the nostril.

The cavity of the nose is lined throughout by a soft thick membrane, extending from the common integument through its whole extent.

Of Membrane generally.—As this is the first membrane which has presented itself to our consideration, I must say a few words of the nature and structure of membrane generally. It is

that portion of the body which is the basis and mould of all the rest. It is diffused over the whole frame. It composes the tissue in which the earthy matter of every bone is deposited, and constitutes the main bulk of every bone. It encloses every muscle as its external sheath; it enwraps every bundle of fibres, every individual fibre, and, perhaps, the ultimate fibre may consist of condensed membrane. I will not detain you with any theory of its own ultimate structure, whether solid or vascular; each has its supporters; while a third party maintains that the fibre of the membrane is alive; is composed of innumerable living beings. I will not detain you with this, but proceed to observe, that the tendons are composed of flattened plates of membrane; the ligaments of membrane otherwise arranged; the cartilages, terminated, defended by, made up of membrane; the brain enveloped by it, and formed of it; the nerves surrounded by it, every fibril coated with it; the nervous substance seemingly fibrous; and, the properties of membrane being cohesion, extensibility, and elasticity, the bladder, the stomach, the heart, the arteries, the integument, composed of it, and illustrating the qualities of it.

Nor will I detain you with the chemical history of membrane; or its division into cellular, or adipose, or fibrous, or serous; these will in turn come before us, but content myself with observing, that this is a *mucous* membrane, so called from the fluid discharged from its vessels,—a true secretion;—every mucous membrane supplied with innumerable glands; lining those cavities which communicate with the external air, as the mouth, the respiratory passages, the digestive; apparently far more important than the serous membranes; the serous in many cases being only designed to prevent friction and facilitate motion, while the mucous membranes are generally connected with important functions—the mouth with taste, the nose with smell, the stomach with digestion, and the intestines with nutrition; possessing more bloodvessels, more nerves, consequently more prone to disease, and disease of a particular character; inflammation in one taking on an ulcerative character, the other accompanied by effusion and adhesion; one involving, by inter-communication of nerves and vessels, surrounding parts; the disease of the other strangely peculiar to itself, peritonitis running its course without affecting the mucous membrane of the intestines, the mucous membrane seldom long or violently inflamed without involving the peritoneal; inflammation of a serous membrane rarely accompanied by prostration of strength; that of a mucous membrane speedily followed by debility.

The Schneiderian Membrane.—The mucous membrane lining the nose is continuous with that of the sinus with which the na-

sal passage communicates, and with those of the nasal duct, the lachrymal sac, the conjunctiva, the membrane of the pharynx, the trachea, the air-cells, the mouth, the tubes of the parotid and submaxillary glands, the Eustachian tubes, the tympanum of the ear; the œsophagus, the stomach, the intestines, the biliary and pancreatic vessels, the urinary and genital passages.

The Schneiderian membrane may be considered as presenting two surfaces, an adherent and a free one; the adherent being very firm, with difficulty separated from the bone beneath, and forming a kind of periosteum to the bone. Lying on this is a reticulated mass of bloodvessels and nerves, particularly on the septum, and the æthmoid and superior turbinated bones. There is no part of the frame more vascular. On this is the free surface, covered with a mucous fluid to protect it from the painful or dangerous influence of the air, the food, or other foreign objects, and being a kind of factitious integument, particularly beneficial in the respiratory passages, subject to the injurious influence of sudden change of temperature or stimulating gases, and in the intestines, defending them from the occasional acrimony of some of the ingesta. When this membrane is carefully examined, there are numerous minute rounded apertures, irregularly distributed, most plentifully on the lower part of the septum, and on the inferior turbinated bone—smaller, and scarcely to be traced on the upper part of the septum, or on the æthmoid bone; given mostly where there is most exposure to injury. Superiorly it is comparatively devoid of mucus, that the olfactory nerves and the lateral nasals may ramify with more effect, and be more sensible to impression. When the intermediate substance is traced with great minuteness, it is found to be glandular; but not composed of distinct glands, or even of the smallest granulations, but a bed of glandular matter. The natural discharge is limpid, small in quantity, and scarcely seen at the nostril. Under inflammation it becomes increased in quantity, thickened, opaque, and even purulent, and that either with or without ulceration.

In the convolutions of the æthmoid and turbinated bones, and in the sinuses of the face and head, the membrane is thinner, more delicate in its structure, and the mucous secretion lessened in quantity. These parts are out of the reach of danger. No current of air blows upon them—no foreign body can injure them; and, their function being limited, they have fewer bloodvessels and nerves; the membrane is more easily torn from its attachment, and it possesses comparatively little sensibility. Although the function of these sinuses and their membranes is imperfect, it seems to be of a double character. The voice is affected by the

sinuosities of the passages, and the air lingering in them, the sense of smell is possibly more acute and faithful.

These are mucous membranes. Then their first and distinguishing characteristic under inflammation is, increased mucous secretion, and that often assuming a purulent form. This increased secretion, under inflammation, is a beautiful provision of nature: it warns us of the presence of the evil, it relieves the engorged vessels, and it covers and defends them from those painful impressions to which their increased sensibility would expose them.

The mucous membrane of the nose, although smooth and soft, is covered by innumerable papillæ. On the superior portion of the nasal cavity, both on the septum and the æthmoid bone, they are particularly evident. These have nothing to do with secretion or exhalation; they are connected with the sensation of the part; they are the terminations of the nerves, whether of peculiar or common sensation. These papillæ are smaller than in most mucous surfaces—small indeed when compared with those on the tongue. Continually exposed to rapid currents of air, and to the influence of pungent gases, and to extreme variations of temperature, little common sensibility was wanted, it was only needed that the sense of smell should be acute in a degree corresponding with the situation and habits of the animal. If the papillæ, however, are not large, they are more numerous than on other membranes, the olfactory nerve is more spread over the surface than terminating in fibriculi.

The nasal cavity is plentifully supplied with bloodvessels, and particularly from the lateral nasal branch of the internal maxillary artery, which enters through the æthmoidal cells, to be distributed chiefly over the membrane of the septum. Other branches ramify on the æthmoid and turbinated bones; and the lower part of the nostrils is indebted to the facial artery and to the palato maxillary.

The Schneiderian Membrane, as indicating Inflammatory Action in the Respiratory Passages.—The mucous membrane of the nose is distinguished from other mucous surfaces, not only by its thickness, but its vascularity. The bloodvessels are likewise superficial; they are not covered even by integument, but merely by an unsubstantial mucous coat. They are deeper seated, indeed, than in the human being, and they are more protected from injury; and, therefore, there is far less hæmorrhage from the nostril of the horse than from that of the human being, whether spontaneous or accidental. Lying immediately under the mucous coat, these vessels give a peculiar, and, to us, a most important tinge to the membrane, and particularly observable on the sep-

tum. They present us with a faithful indication of the state of the circulation, and especially in the membranes of the other respiratory passages with which this is continuous.

We lack many of the auxiliaries of the human practitioner. Our patients are dumb; they can neither tell us the seat nor the degree of pain, and our blunders, unfortunately for us, sometimes, are never buried with the patient. Well, we must use greater diligence in availing ourselves of the advantages that we do possess; and we have some, and very important ones too. The varying hue of the Schneiderian membrane is the most important of all; and, with regard to the most frequent and fatal diseases of the horse, those of the respiratory passages, it gives us almost all the information, with regard to the state of the circulation in those parts, that we can possibly require. Veterinarians, too, generally overlook this. It has not yet been sufficiently taught in our schools, or inculcated in our best works on the pathology of the horse.

It is the custom with most veterinary surgeons, and almost with every horseman who will take any pains to ascertain for himself the state of his sick horse, to turn down the lower eyelid and to form his opinion of the degree of general inflammation by the colour which the lining membrane of the lid presents. If it is very red, he concludes that there is considerable fever; if it is of a pale pinkish hue, there is comparatively little danger. Why, this is a very important examination, and the conclusion which we draw from it is generally true; but on the septum of the nose we have a membrane more immediately continuous with the membranes of the respiratory organs—more easily got at—presenting a larger surface—the ramifications of the bloodvessels better seen, and, what is truly important, indicating not only the general affection of the membranes, but of the membranes with which we are most of all concerned.

Let me urge you to attend more to this. Study the character of that portion of the membrane which covers the lower part of the septum; that which you can most readily bring into view. Day after day, and under all the varying circumstances of health and disease, study it, until you are enabled to recognise, and you soon will, and that with a degree of exactitude you would have scarcely thought possible, the pale pink hue when the horse is in health and quiet,—the increasing blush of red, and the general and uniform painting of the membrane, betokening some excitement of the system,—the streaked appearance when inflammation is threatening or commencing,—the intensely florid red of inflammation becoming acute,—the starting of the vessels from their gossamer coat, and then seeming to run bare over the mem-

brane, when the inflammation is at the highest,—the pale ground with patches of vivid red, shewing the half-subdued, but still-existing fever,—the uniform colour, but somewhat redder than natural, indicating a return to a healthy state of the circulation,—the paleness approaching to white, indicating a state of debility, and yet some radiations of crimson, shewing that there is yet much irritability, and that mischief may be in the wind,—the pale livid colour warning you that the disease is assuming a typhoid character,—the darker livid, announcing that the typhus is established, and that the vital current is stagnating,—and the browner, dirty painting, intermingling with and subduing the lividness, and telling you that the game is up.—Study these things, Gentlemen; they will be guides to your opinion and your treatment, which you can never too highly appreciate.

THE VETERINARIAN, JANUARY 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

If we could be assured that our readers would receive us with but half the pleasure with which we pay them our new year's visit, we shall be truly gratified. We have now been acquainted four long years; or, rather, we have been fellow-labourers during that period. At each of these periodical divisions of our Journal and our time we have been accustomed to inquire how we stand with each other, and what progress we have made towards the accomplishment of our common object.

We flatter ourselves that at every resting-place we have had additional reason to congratulate each other. It is true, as our esteemed friend, Mr. Karkeek has said, that *we* have had a good deal of up-hill work. Never mind. *We have climbed* the hill to a certain extent, and we contemplate with almost unmingled satisfaction the prospect before us.

Our common object—that of our contributors and ourselves—is the improvement of veterinary science. The year that has just closed upon us has witnessed its progress to an unexpected and glorious extent. In the first place, the new regulation of the twelvemonths' interval between the entry of the pupil's name on the College books and his examination, has been uniformly en-

forced; and the consequence has been, that never did more pupils pass who will prove an honour to their profession than in the last two or three months. We know the majority of them, and we can speak of them: a regular supply of such recruits would make our corps all that we could wish. In our next annual retrospect we shall have to record, that the word of promise has been kept with regard to *the actual residence, the actual attendance on lectures and on practice,* as well as the mere lapse of time.

Next we have to remark the spirited exposure of that inconceivably strange farrago, the College Pharmacopœia; and the tacit acknowledgment that a collection of recipes, so unchemical, inapplicable, and barbarous, admitted not of one word of defence, and would be henceforward discarded and disowned.

Far superior to this are the valuable additions to physiological and pathological science, which the fourth volume of THE VETERINARIAN contains.

We may surely add—although it be of a personal character, yet as intimately connected with the advancement of the veterinary art—the attachment of a veterinary lecturer to the medical school of the University of London—the acknowledgment, and in such an institution, that the practice of veterinary medicine is a legitimate branch of medical science. To this we may subjoin, the publication of the lectures of the individual so appointed, in a Journal which finds its way to every part of the civilized world; and thus the advocacy of our cause, in every medical school throughout the world: and, last of all, the announcement of a new school of veterinary medicine, the instruction of which will extend to every branch of our art; and of which school we will only say, that if its teachers prove incompetent or faithless, our Journal will be open for their merited exposure.

Having pursued our "up-hill work" thus far, and so glorious a prospect lying before us, we are willing to rest a while, at least from controversy; and we invite our talented friends, those by whose communications the pages of our periodical used to be enriched, and those whose lucubrations still give value to our work, and some of whom, perhaps of both classes, have been a little idle,

but they mean in future to do better, and more fully to answer that claim upon them which the display of their talent to amuse and to instruct has given their brethren;—we say, that we call upon all our friends to unite in the pursuit of physiological and pathological veterinary science.

We must not presume to dictate too much to our contributors; and to animadversions *from every quarter* that are not tainted by malignity, and in which common courtesy is not violated, we shall readily give insertion; still, if we could have our choice, we would rather have one practical than a dozen controversial papers.

All communications, however, whether controversial or practical, must be sanctioned by the name of the writer. We are sorry and ashamed to have to repeat this so often; but we have received within the last month three anonymous contributions, far too personal and caustic, which we do not think that we should have admitted even if they had been authenticated by the signature of the author; but which, as mere anonymous communications, we cast aside with a feeling bordering on contempt, although we are not personally concerned.

To Studens (?) we reply, that Mr. Youatt's lectures will be regularly continued; but how rapidly, and the space which they will occupy in each Journal, must depend on the good pleasure of our contributors. We wish always to devote the first forty pages to original communications; and when we have not other things, these lectures must eke out the appointed quantity. They *are* condensed. They must be so, or there would be no end to them in a Journal published monthly. Those lighter illustrations which are absolutely necessary to relieve the tediousness of a lecture an hour in length, are omitted; but no portion of the pith and marrow of them, if they have any, shall be lost; nor, for honesty's sake, shall any thing be superadded to them.

Extracts from Journals, Foreign and Domestic.

Epidemics among the lower Animals.

That the coincidence of *epizootic* diseases with epidemic, should have been especially laid hold of by the anti-contagionists, is by no means surprising; for their history, when superficially examined, certainly *seems* inconsistent with the opposite opinion. From the earliest times it has been a matter of common observation, that plagues and murrains among the lower animals, not infrequently either preceded or accompanied the visitations to which mankind were subjected. Thus, at the siege of Troy, we are told by Homer—

——— μετὰ δ' ἰὸν ἧκε·
Δεινὴ δὲ κλαγγὴ γένετ' ἀργύρεοιο βιοῖο.
Οὐρῆας μὲν πρῶτον ἐπῳχέτο, καὶ κύνας ἀργούς·
Αὐτὰρ ἔπειτ' αὐτοῖσι βέλος ἐχεπευκὲς ἐφιεὶς,
Βάλλ'· — ——

In India we are informed, that poultry and dogs frequently perished during the prevalence of cholera, and with similar symptoms. At Marienburgh, in Prussia, this year, the fish in the large ponds in that government are all said to have perished during the prevalence of the epidemic, and forty tons of them were buried from the single pond of Dinperburgh. In Warsaw, some examples of a disease resembling cholera were also noticed among the lower animals. In the Irish and Scottish dysenteries the same circumstance has more than once been remarked. In Gibraltar, during the yellow fever, parrots, monkeys, cats, and canaries, sickened and died in considerable numbers.

Now, arranging these curious facts, we find that the only authentic cases we have of the epizootic *preceding* the epidemic, are recorded in connexion with irruptions of dysentery. The disease described by Homer is supposed, by all the old medical writers, to have been dysenteric; and when we consider the frequent connexion established between this malady and various vitiations of air, soil, food, &c., it will not appear strange that the lower animals should have shewn a greater sensitiveness to their effects than was manifested by armies in a high state of mental and bodily excitement. In cholera, the epizootic affection, in the *few* examples in which it has been noticed, occurred *contemporaneously* with the human epidemic. The rarity of the cases might alone entitle us to look upon them as accidental coincidences. We know, moreover, that poultry are liable, under

numerous circumstances, to be swept off with extraordinary virulence by diseases, the obscurity of the symptoms and pathology of which scarcely permits any argument to be founded on their observation. Again, we see no reason why infection or contagion may not be propagated from man to animals, and *vice versâ*. The important and beautiful experiments of Dr. Sonderland, of Bermen*, shew distinctly that the infection of small-pox will, in the gaseous form, and *without inoculation*, induce the *vaccine disease* in the cow, and that again the malady thus induced in the animal becomes infectious *without inoculation* to man. From this beautiful discovery the author deduces some aphoristic conclusions of the highest importance; and he observes, "that an instructive lesson may hence be drawn, how the poison of diseases in the gaseous form may be communicated to the lower animals, and, according to the difference in their constitution, engender diversified products, which may be then used as protective means against the maladies from which they originated. Such, for example, may be subsequently proved of scarlet fever, measles, yellow fever, and plague." Taking these facts into consideration, and remembering the transmissibility of murrain and glanders from the lower animals to man, what is the difficulty in supposing, that if the malady in Mr. Searle's duck were "a most decided case of Asiatic cholera," the disease was engendered by the infectious poison of that distemper? In the typhoid murrain that ravaged the pastures of Europe during the last century, and which was witnessed by Camper, in Holland, in 1774; by Sauvages and Chaumel, in France, in 1745; by Count Moscati, in Lombardy, in 1795; it was found that seclusion of the healthy animals preserved them, except where the keepers incautiously communicated from one flock to another.

As to the fishponds of Marienburgh, it is sufficient to observe, that a similar mortality has several times occurred at the same season; and that into the lake where the loss was greatest, the inhabitants of the adjoining town had emptied an offensive drain as a sanatory measure. As well, therefore, might the poisoning of the Dutch eels by the Thames water be regarded as a precursor of cholera, or as an evidence of its non-infectious nature.—*Lancet, Nov.* 19, 1831.

On the Identity of Small-pox and Cow-pox.

Dr. Sonderland, of Bermen, if his experiments be correct, has at length succeeded in establishing what physicians have long laboured to discover—a satisfactory and simple explanation

* Journal der Praktischen Heilkunde, Janv. 1831.

of the protective power of cow-pox against small-pox; and has announced, we will venture to say, the most important discovery which has been made in the pathology of these diseases since vaccination was first introduced—by shewing that they are modifications of one another, and that cow-pox in the cow is simply small-pox in man, and may be produced in that animal at will by the variolous contagion. Of the authenticity of his facts we do not pretend to judge. All we can say is, that the author, if we judge from the language of Hufeland towards him, is a respectable practitioner, and a public medical officer.

"The simplest and surest mode," says he, "of producing cow-pox in the cow, and thus proving indisputably the identity between the contagion of cow-pox and that of human small-pox, is to follow the procedure here laid down:—

"Take a woollen bed-cover which has lain on the bed of a small-pox patient who has died during the suppurating stage, or is suffering from the disease in a considerable degree, and is lying in a small imperfectly-ventilated apartment, and when it is well penetrated by the contagion, roll it up immediately after death; or on the fourteenth day of the disease, wrap it in a linen cloth, and then spread it for twenty-four hours on the back of a quey in such a manner that it cannot be thrown off by the animal. Then place it for twenty-four hours on the back of each of three other queys, and afterwards hang it in such a manner in their stall that its exhalations may rise upwards and be inhaled by them. In a few days the animals will fall sick and be seized with fever; and on the fourth or fifth day the udders and other parts covered with hard skin will present an eruption of pustules, which assume the well-known appearance of cow-pox and become filled with lymph. This lymph, which exactly resembles the lymph of genuine cow-pox, if used for inoculating the human subject, will induce the vaccine or protective pock. The only precaution which it is necessary to observe is, that the person about to be inoculated shall not be exposed in any manner to the contagious effluvia of the cow-house, either directly or through the intervention of the experimentalist's clothes, otherwise he may have natural small-pox.

"A bed-cover impregnated with the variolous contagion, if firmly rolled up and wrapped in linen, and afterwards in paper, and then properly packed in a bucket, will retain the contagion for at least two years, so as to infect a cow with cow-pox, provided it be kept in a cool, shady place, where the temperature does not fall under thirty-two or above fifty-two degrees.

"My present occupations prevent me, at this particular period, from giving a full and scientific exposition of the consequences

which must follow from this discovery; but I may state them shortly in the aphoristic form.

1. "This discovery is new; for although many have suspected the identity of small-pox in man and cow-pox in the cow, and have in consequence performed inoculation with the matter of both, yet no one has previously ascertained the possibility of transmitting the contagion to the cow in the gaseous form, so as to decide the question beyond all doubt.

2. "The desire of physicians and governments to discover cow-pox in cows, in order to revive the vaccine lymph, is more than fulfilled by the discovery of a simple method of engendering cow-pox in the cow at will.

3. "Jenner's discovery of the protective power of vaccination, hitherto imperfect, is now perfected, because the hitherto unknown nature and origin of cow-pox are laid open.

4. "All previous uncertainty regarding the quality of vaccine matter, its degeneration, the loss of its protective property, and the like, must now cease, because we have obtained a clear insight into the nature of cow-pox, and can lay down a substantial theory of its operation.

5. "This discovery must tend to widen the boundaries of physiology, pathology, and therapeutics, since it shews how the subtile contagion of small-pox, so hostile to the nervous system of man, may be conveyed in the aeriform state from him to the cow, excite in that animal a similar disease, but in doing so be changed by the special constitution of this class of animals into a permanent contagion of a different kind.

6. "An instructive lesson may be drawn from this discovery how the poison of diseases in the gaseous form may be communicated to the lower animals, and, according to the difference in their constitution, engender diversified products, which may be then used as protective means against the diseases from which they originated. Such, for example, may be subsequently proved of scarlet fever, measles, yellow fever, and plague.

7. "It is now clear why, in recent times, cow-pox has been seldom or never seen in the cow. For the cow-pox of the cow arises merely from infection by the variolous exhalations from men recently affected with small-pox, and coming in contact with the cow. As epidemics of small-pox have been rare during the last thirty years, cows could seldom be exposed to infection, and have therefore seldom exhibited the disease."

Journal des Praktischen Heilkunde, Januar. 1831.

Extract from the Report of the Proceedings of the School at Alfort, during the Session of the Year 1831.

Clinical Chair.

I. During the session which has ended, there were admitted and subjected to medical treatment 498 animals; namely, 253 horses, 71 mares, 3 asses, 161 dogs, 7 goats, 1 pig, 1 cat, and 1 parrot.

Of the 324 horses and mares, 265 were discharged cured or in a convalescent state; 37 died; and 23 having been condemned as glandered, were destroyed. Two of the three asses were returned to their proprietors perfectly well; the third is recovering.

Of the 161 dogs, 137 were discharged cured; 28 died; and 6 having been abandoned, were destroyed.

The 7 goats, the cat, and the parrot, were cured; and the pig died.

But a little more than a ninth part of the horses that were treated in the infirmary, died. But if we consider that the greater part of the animals which are sent to us are afflicted with very serious diseases; that many have been already treated without success, or condemned by others, and are only sent to our school as a last hope, we cannot but be pleased with the results of the method of cure pursued in our establishment.

Besides these, 864 animals have been brought to the school for advice; on each of them the professor or the chief assistant gave his opinion, either verbally or in writing; and on many of them important surgical operations were performed. The inoculation of a flock of sheep belonging to the school gave the pupils an opportunity of studying the development, progress, and termination of the scab.

Lastly, the pupils in their fourth year of study have been sent from the school to attend the horses, cows and sheep, whenever their services have been required by the proprietors in the neighbourhood.

Charged with the direction of the hospital, M. Renault has endeavoured to render his system of practical instruction profitable to the pupils. Seconded by M. Delafond, he is principally studious to direct their attention to those diseases which are most common, and which consequently they will most frequently meet with in the course of their practice. Thus, affections of the lungs, or of the intestinal canal, diseases or wounds of the foot, or the skin, &c., have been the frequent subjects of clinical lectures, whether at the arrival or during the continuance of the animals

in the infirmary, at the time of their dismissal, or at the examination of the carcass.

These lectures, given while standing by the diseased animal, cannot but be deeply engraved on the mind of the pupil, when the Professor, passing over all the general or secondary symptoms, seizes, as far as the state of the science permits him, the pathognomonic character of the malady as indicated in the subject before them, and at that moment appearing. On the other hand, that the pupils may not be accustomed to the use of medicines which they will not afterwards be able to employ in their own practice, M. Renault endeavours, in almost all his prescriptions, only to employ those medical agents which may be obtained everywhere, or which, although of equal therapeutic value with others, are less expensive.

II. The great number of horses attacked by diseases of the chest, which have been brought to our hospital this year, have enabled M. Delafond to continue his researches into the diagnostic of these diseases, and to M. Renault to make application of these in the clinical lectures which he gives to the pupils.

The examination of those animals which died in the hospital have proved to what precise points we can arrive by means of percussion, and above all, by means of auscultation, applied to the chest of the horse. Not only is it easy by the use of these means to distinguish between pneumonia and pleurisy, and a combination of the two; but it is possible to discover exactly the presence and the height of the liquid in the effusion of pleurisy, and the extent and the nature of the alterations of the pulmonary tissue in pneumonia. Several times in the course of this year there has been delineated on the exterior of the chest of the horse, during his life, the excavations, more or less extended, which were supposed to exist in the lungs; and the examination after death proved the supposition to be accurate.

M. Delafond has thus made an immense improvement in veterinary pathology; since it is certain, that among the internal inflammatory affections, those of the respiratory organs enclosed in the chest are the most frequent in the horse. These researches and observations are the more advantageous, as they are made under the eyes of the pupils, and who have always opportunity to exercise their own ears in this invaluable method of exploration.

III. The nature of the service exacted from the horses that are worked in the environs of Paris, brings many of those animals to our infirmaries, afflicted with divers diseases of the feet. Many afflicted with quittor, sand-crack, and pricks of the sole and of the frog, of variable depth, have furnished subjects of

observation to our pupils, in the study of these important diseases, and, especially as the most part of these animals had undergone, before their arrival at our school, a medical treatment, more or less rational; and they have in general been restored to work in a much shorter time than that usually assigned to the cure of these complaints. These happy results, according to M. Renault, ought to be attributed to the scrupulous attention he has always exercised in the operations he has performed on the foot, religiously to husband the sensible frog and the laminated tissue, and to abstain in his dressings from those hard compressions so much recommended in some works. He rarely requires more than two dressings for the complete cure of sand-cracks; and the cartilaginous affections which had been already treated by caustics, or incompletely operated on before the patient's arrival at the school, required, at the most, four or five dressings for their radical cure.

IV. Twenty-three horses presenting those disordered symptoms vulgarly called colic, have been brought to the hospital, and treated by bleedings and frictions of the limbs; seventeen were discharged cured. Of the six who died, two only presented the least hope of cure on their arrival; two others were in a desperate state, and had not been submitted to any treatment; and of the two last, which had been treated for some days, their death was caused by old organic lesions, over which medical skill had no power. One died from the rupture of an aneurism of the cœcal portion of the great mesenteric artery; the other from the strangulation of a portion of the small intestine, which had been pressed through an old rupture, of an inch or more in diameter, on the fleshy part of the diaphragm. This last horse had suffered frequent attacks of colic; and it was remarked, that from the commencement of the last attack until death, he always fell backward when standing, and then remained sitting on his haunches, without any struggle. Thus the antiphlogistic and revulsive treatment made use of failed only in two horses; and the examination of them after death has shewn, that it was the only one that could offer some chance of success, since they found on the whole of the diseased part extravasated blood in the mucous membrane of the cœcum and part of the colon.

During the six years that M. Renault has devoted to researches into the causes of colic in the horse, he has opened a great number both in and out of the school; and he is convinced, that in nineteen cases out of twenty, the disease expressed by the term "colic," whether it be more or less violent, is a congestion of the intestinal blood, sometimes followed by hæmorrhage. In some cases, these congestions are provoked by the continuance of ill-

digested food in the stomach or the intestinal canal; in others, and more rarely, it is owing to the intense irritation produced by entanglement of a portion of the intestine; but, in the immense majority, the cause can only be guessed at, the lesions only are certain. These consist, when there is nothing but congestion, in a sanguineous effusion in the mucus of the small or large intestine, the deep red colour of which has often been taken for gangrene. When hæmorrhage has taken place in the same mucous tissue, its colour is of a blackish brown, and its thickness has sometimes been found to be nearly an inch, and resembling, when it is cut into, a clot of blood. At other times, instead of hæmorrhage, we find the contents of the intestinal canal mixed with and coloured by a red liquid, or even by pure blood.

According to M. Renault, the hæmorrhage in these circumstances is never primitive; it is always preceded by congestion, and only takes place at the end of a time varying with the plethoric state of the subject, and the greater or less intensity of the causes that produced the congestion.

This knowledge of the progress of this malady is of the highest importance: since so long as there is nothing but congestion, the blood is still contained in its vessels, which are only distended, and it is possible to obtain a cure. But as soon as the hæmorrhage has commenced, whether through the pores of the vessels or by a rupture of their coats, all hope is lost, and death is inevitable. It is guided by these powerful considerations that M. Renault has adopted for a principle of therapeutics, that, whatever be the remote cause of violent colic, the immediate cause is almost invariably, or always, a congestion of the intestinal blood; and this liable to become instantly mortal, if recourse be not had to copious bleeding, and to those powerful derivative means which may lessen the intestinal circulation, divert the blood towards the skin, and thus prevent hæmorrhage. The more acute the sufferings of the animal, the more necessity there is for prompt measures; a moment of hesitation, an instant of delay, may be attended by the most fatal consequences, since, the hæmorrhage once begun, the loss of the patient is inevitable, and bleeding, far from preventing the fatal termination, only serves to hasten it. Copious bleedings are so efficacious, when they are promptly made use of, that many and many a time the pupils have seen horses tortured by the most violent colic, become instantly calm after a loss of blood of eight or ten pounds, and, in a few hours, appear in perfect health. At other times, it is not until after the second or third bleeding that the colic is relieved. We could cite numerous examples of horses cured by this treatment, and when the colic appeared a little time after the

animals had been unharnessed, and had eaten an enormous quantity of oats and hay. This mode of treatment was that which M. Vatel adopted during the last years that he directed the hospital of this school: the following results gathered from the clinical reports of that Professor, by M. Renault, then principal assistant, will not be heard without interest:—

In 1827, thirty-nine horses sent to the school with violent colic were bled, thirty-one were dismissed cured, three died; the other five were so near death, that no treatment was applied. On opening the animals, all the characters of more or less complete intestinal hæmorrhage were found.

In 1828, the results were still more happy; since out of thirty-three afflicted with colic, twenty-nine were saved by this treatment. Experience seems, then, to speak in its favour.

M. Renault regrets that the limits of a simple report have only permitted him to give a very summary and incomplete detail of this so common and serious affection, and one, the true nature of which is at the present moment so little known. He intends to make it the object of a work that he will shortly publish.

IV. We could not be strangers in this school to the experiments tried by veterinarians, as to the efficacy of chlorine against glanders. Last year, M. Moiroud made several experiments which did not correspond with the hopes that some publications had excited. This year, M. Renault has made many new trials of this medicine. He has used the chlorine on twelve horses in different stages of glanders. To some he administered it in fumigations, the concentration, the length, and frequency of which he varied; to others he administered it in different doses, in a state of combination either with sodium or lime; with others the chlorides of lime and sodium were injected with care into the nostrils at variable degrees of concentration. Some took the chlorine under all these forms at once; one only, which, for three weeks, was subjected to treatment by injections of chlorine in various combinations, appeared to be cured, and was returned to his owner: a month afterward he was again brought to the school, more decidedly glandered than ever.

Nevertheless, all the horses which presented symptoms of glanders were not unsuccessfully treated in our infirmary. Several among them, whom a chronic flux from one nostril, and an enlargement of the submaxillary glands on the same side, had caused to be regarded with great suspicion, were cured and returned to their owners. The treatment which appeared the most beneficial in these circumstances, and which had previously succeeded in the hands of M. Moiroud, consisted of bleedings of two, three, or four pounds at the most; repeated several times,

after an interval of two or three days. To this was added fumigation, at first emollient, afterwards aromatic, and of a more or less stimulating nature, according to the state of the nasal membrane and the character of the discharge. On some animals, injections rendered astringent by the acetate of lead, appeared to have good effect. All this time, the enlarged glands were rubbed with mercurial preparations, or, what seemed better, with the iodate of potassium, and they were kept warm. The animals were submitted to a good regimen, and the applications were made with great care. These general observations on the most frequent diseases of domesticated animals, and that which M. Renault has developed in his clinical lectures, will, we think, suffice to prove, that now, as hitherto, the study of the practice of veterinary medicine is cultivated in our school, and in a manner that acquires us new claims to the confidence of the numerous proprietors who have had recourse to us in the treatment of their animals.

A crowd of other particulars, which the limits of our report forces us to pass over in silence, and which have been collected in our hospitals, have been or soon will be published, in the Recueil de Médécine Vétérinaire, and in which the observations of the professors of this school are deposited.

The services rendered by our establishment have not been limited to its immediate neighbourhood.

A disease bearing the character of an enzootic shewed itself towards the middle of last year among the horses of one of the largest proprietors of the department of the Somme. M. Renault was immediately sent for to examine and to treat it. At the time of his arrival, the disease had prevailed for nearly three months; and out of one hundred and thirty horses which were in the stable at the time of its development, forty-nine were dead, and fifteen diseased. They knew not what to think of this affection, in which no organ seemed to suffer or be in the least altered, either before or after death. Many of the patients ate heartily up to the last moment. The various methods of treatment adopted all failed. There was nothing to direct their researches, and their efforts to prevent it were not more happy. Among the persons who were consulted, some attributed it to the unhealthiness of the stables; others, to the bad quality of the water; some believed it to be contagious; the people of the house believed all sorts of things: the owner knew not what to think in the midst of all these contrarieties, and was in absolute despair.

M. Renault set to work immediately to study the character and nature of this fatal malady. Of the fifteen horses which were diseased at the time of his arrival, eight, of whom there was no

hope, were destroyed, and the examination of them served to throw light on his researches. In comparing the observations which he made on the carcasses of the dead with the symptoms and character of disease observable in the living patients, he was assured that the primitive alteration, the essential malady, was in the blood, which, whether taken from the dead or the living animal, covered his hands without reddening them, and either did not coagulate, or formed a mass of a dirty grey colour, and contained a very small proportion of fibrine, which was easily proved by analysis. These alterations were yet more perceptible in the horses that had been diseased for some time. There was so little cohesion between the organic elements of the blood, that, even during the life of the animal, the fibrous filaments separated from the liquid whenever it was agitated, although in the slightest degree. Agreeably to this, in many of the carcasses that were opened immediately after death, there were found little parcels of pure fibrine floating between the cords which retained the mitral valves, or resting on the fleshy columns which traverse the left ventricle of the heart. In one horse, that died after being ill fifteen days, M. Renault found an adhesion between the wall of the left ventricle and one of the mitral valves : the adhesion was formed by a little fibrinous mass, deposited doubtless for some days beneath this membranous fold. If we add to these characters, the paleness and flaccidity of all the organs which, like the red muscles, are essentially fibrous ; the absence of all traces of either acute or chronic inflammation in any organ ; and the rapidity with which the carcasses became putrified, it cannot be doubted that the disorder existed in the blood, characterized by the small proportion of fibrine and colouring matter in this fluid, as well as by the easy separation of its elements.

What still further serves to support this opinion, is the knowledge of the causes of the disease. In fact, for nearly six months the horses had been fed on fodder that had stood in the stack during the rains of the preceding year, and consequently had become mouldy, and acquired an insupportable smell. The oats, though good during the last month, had also formerly been of an inferior quality. Another powerfully debilitating cause was added to the former: several very laborious relays had been undertaken by the proprietor at the beginning of the year, and, notwithstanding this increase of work, the number of horses had not been augmented. Bad food and increased work—can more be required to engender disease? Happily the undertaking of the relays had ceased for some weeks. M. Renault had only then to attend to the food. He made an entire change. He had the fodder moistened with salt water, and he

diminished the customary work for some days. Those of the horses who exhibited slight symptoms of disease he first bled, and then put under a course of tonics, and left them for some days to repose, and to a more substantial regimen.

From that time the malady stopped, or very few horses were attacked. Out of the seven sick horses who were thus treated, one only died; the other six were cured, but it was a long time before they could resume their ordinary work.

M. Renault is now writing an account of this disease, which he proposes to read at the Royal Academy of Medicine.

A Case of Aneurism of the Right Auricle of the Heart, followed by Rupture of that Auricle in the Horse.

By MM. Riss *and* Meyer.

On the 5th of February, 1831, at the feeding time at four o'clock in the afternoon, we were called to attend a sorrel-coloured horse about five years old, belonging to the 1st squadron; received into the regiment the end of October, 1830, in a very bad condition, and in which state he had remained until this period. This horse, according to the report of the quarter-master for the week, had not eaten his morning provender, and he was cramped and lame in his hind extremities. After having attentively examined him, we remarked the following symptoms:—he was dull, the head low, the flanks tucked up: he staggered when walking, with his hind extremities wide apart; the pulse was small and quick. We desired that he might be taken to the infirmary, with orders to restrict his diet, and after that we resolved to wait until the morrow to fix on some rational plan of treatment, being far from expecting that which was about to happen.

Towards six o'clock (that is to say, two hours after he had entered the infirmary), we were informed that he had suddenly fallen down and could not rise again, and groaned very much. We went to him immediately: we found the animal stretched on his litter; his respiration was painful, almost approaching to suffocation; his flanks heaving, his nostrils dilated; his eyes in a manner inverted in their orbits; the mucous membranes appeared discoloured, and the pulse was small, wiry, and unequal. The hand being placed on the left pericardiac region, the violent palpitation of the heart was felt: the pulsations were sometimes so strong, as to be heard distinctly; and the body was covered with sweat.

He remained in this state nearly eight minutes; at the end of which time he appeared to suffer less; the flanks became less agitated, and the respiration calmer. We profited by this intermittence, and raised him; we accomplished this with difficulty, and with the assistance of many men. We abstracted ten pounds of blood, half of which was taken as he stood, the other half while he was lying down; for, shortly after the stroke of the fleam, he fell, and could not be raised again. The blood was thick and black, and resembled the dregs of wine. Laxative clysters were now applied. In a short time the symptoms reappeared with greater intensity, and the animal died about eleven o'clock that night.

The body was opened early on the following morning. The cranium and abdominal cavities presented nothing particular. All the contents of the chest were perfectly healthy, with the exception of the heart. The pericardium was enormously distended by a quantity of thick and red-coloured serosity, in which clots of blood were swimming. The internal face of the bag presented general traces of acute inflammation: the heart was of its ordinary size; the left auricle presented a longitudinal rupture, running from the top to the bottom, and about two inches in length, and which was interrupted by a strong ridge, and thus formed two distinct openings. The cavity of the auricle was closed by an enormous clot, partly of blood and partly of fibrine. We carefully took out all the blood contained in the cavities of the heart: it was then that we distinctly perceived, in comparing the two auricles, that the right presented an aneurism or dilatation to almost double its ordinary size; the wall was become so thin, that the perforated part formed a species of membrane scarcely the thickness of paper. The inspection of the other cavities of the heart presented nothing extraordinary.

It is very evident that the aneurism of the right auricle had existed a long time in this animal before he came under our care; but that which is not so easy to decide is, whether the rupture of this aneurism had taken place before this epoch, or whether it was the consequence of the frequent falls the animal had after his entrance into the infirmary. We confess we do not know what to say on this subject.

Recueil de Méd. Vét., Sept. 1831.

Miscellanea.

Veterinary Surgeons newly graduated.

We have great pleasure in inserting the following list of new graduates in our profession. Of the thirteen, nine of them, Messrs. Wheatley, Templar, Cowie, Duncalf, Jackson, May, Naylor, Simpson, and Bean, belonged to the school of one of us, as well as to that of the Veterinary College, and we well know the worth of several of them.

The admission of such men among us, as we know the majority of them to be, betokens the rapid improvement of our profession, and the approach of that time when medical men will not blush to acknowledge as brethren those who practise our branch of the healing art.

We shall continue the list so far as we are enabled, that is, so far as we are favoured with the names of the successful candidates for the College diploma. If omissions should occasionally occur, as we have reason to believe they may in the present instance, the fault shall never rest with us.

Graduated November 16, 1831.

Mr. Samuel Wheatley, of Newmarket.
Mr. Robert Byers, of Northallerton, Yorkshire.
Mr. Richard Templar, of Bally Gunge, Calcutta.
Mr. James Cowie, Hackerton, Lawrence Kirk, N. B.

Graduated November 22.

Mr. Thomas Duncalf.
Mr. Charles Jackson, Guildford, Surrey.
Mr. Charles May, Maldon, Essex.
Mr. M. E. Naylor, Wakefield, Yorkshire.

Graduated December 6.

Mr. William Simpson, Lancaster, now of London.
Mr. Richard Saunders, Spilsby, Lincolnshire.
Mr. Barrington Bean, Stockton on Tees, Durham.
Mr. John Child, Swaffham, Norfolk.

Graduated December 15.

Mr. John Phillips, Son of Lieutenant Phillips, 12th Royal Lancers.

Examination of the Horse by a Blind Man.

The author of Waverley happened to be standing by with another gentleman, while the captain of the Selkirk Yeomanry

was purchasing a horse for the use of his trumpeter. The animal offered was a handsome one, and neither the officer, who was an excellent jockey, nor any one present, could see any imperfection in wind or limb. A person happened then to pass, who was asked to give his opinion: this man was called Blind Willie, who drove a small trade of horses and cattle; and what seemed as extraordinary, in watches, notwithstanding his having been born blind. He was accounted to possess a rare judgment in these subjects of traffic. So soon as he had examined the horse in question, he immediately pronounced it to have something of his own complaint; and in plain words stated it to be blind, or verging upon that imperfection; which was found to be the case upon close examination. None present had suspected this fault in the animal, which is not wonderful, considering that it may frequently exist without any appearance in the organ affected. Blind Willie being asked how he made a discovery imperceptible to so many gentlemen who had their eyesight, explained that, after feeling the horse's limbs, he laid one hand on its heart, and drew the other briskly across the animal's eyes; when finding no increase of pulsation in consequence of the latter motion, he had come to the conclusion that the horse must be blind.—*Notes to the Waverley Novels.*

Shaving a Horse.

A gentleman, named Wells, was summoned before the Commissioners by Thomas Field, a hair-dresser, for the sum of thirty shillings, the price demanded by the plaintiff for shaving a horse.

The plaintiff swore that the defendant brought to him a horse to be shaved, for the purpose of "shewing a new coat upon the animal." The horse had been attempted to be shaved by the defendant, on part of the stern, but, from want of skill in the art, the poor beast was most miserably notched. The defendant got tired after four hours' work, and then handed over the job to the plaintiff. The razors of the shop were in great requisition for ten days, during which the shaving was going forward, and the plaintiff was obliged, as he proceeded, to wrap up the bald parts to protect the horse from cold. The Commissioners, he said, could not possibly judge of the difficulty of shaving a horse from shaving themselves: it was quite a different sort of a business; and he defied any man to "go over" such a sized animal for less than three shillings a-day, and to go over the chins of his usual customers at the same time.

Mr. Meyers (of St. Michael's Alley, one of the Commissioners) asked what objection was made to the charge.

The defendant declared that he considered the sum of thirty shillings, for merely taking the hair off a horse, considerably too much, especially as he (defendant) had done a good deal of the job himself.

The hair-dresser declared that the part upon which the defendant had operated was so badly done, that, if it had not been shaved again, the coat would have been as rough over the stern as a hedgehog, while all the rest was as smooth as the body of a new-born babe.

The defendant said that any horse-clipper would have completed the business for a great deal less money.

The hair-dresser said that was quite impossible. He had never shaved a horse before, but it was a regular sweater.

Mr. Meyers asked the defendant what he generally paid for a shave for himself.

The defendant (feeling his chin). "Why, two-pence, I think, is generally the price."

Mr. Meyers.—"Ay, a penny a cheek. Now, how many of your jaws do you think would make up the size of a horse?"

The defendant said there was less delicacy necessary in shaving a horse than a man.

Mr. Meyers.—"Not a bit more than in shaving an ass."

The hair-dresser.—"Look at the lather, and the chance of a kick! Besides, I went over the beast as clean as possible; I turned him out smooth as my hand, down to the fetlock."

Mr. Meyers said he was surprised at the refusal to pay thirty shillings for the job. Indeed he always thought it impossible to perform a thing of the kind, and he believed that to be the general opinion; for was it not usual for people to say, when they heard a bouncing fib, "Next comes a horse to be shaved?"

The hair-dresser said that it was a very hard matter to shave some part of a horse, because the skin here and there hitched very much: for his part, he would rather go over a whole regiment of soldiers.

The defendant was then ordered to pay to the hair-dresser the thirty shillings, and costs. *Morning Herald.*

Export of Live Stock from the Highlands.

The great occupation of the Highlands, it is well known, is the rearing of live stock, and the staple trade of the country its exportation to the southern markets. From time immemorial, from the period of the Romans down to the days of Rob Roy, and even within the last thirty years, the whole of this export was

made along the ancient drove-way through the centre of the Highlands to the city of York. In England the line is still preserved, extending south of Falkirk to Yorkshire, and holding a direct course over the pastoral and mountain districts of the borders. In Scotland, however, the prescriptive immemorial right of our countrymen was gradually infringed upon, and ultimately taken away: local turnpike acts were procured, enabling road trustees in the intervening Scottish counties to interrupt the right of way; and from less to more the hardships went on increasing, till at length the Highlander was completely shut out of his ancient path. He was then compelled to take the dry dusty turnpike road, which is miserably ill accommodated with suitable resting-places for the stock; and where, in addition to heavy and increasing toll-dues, great numbers of the sheep die from affright and fatigue. The wild mountain animals, introduced at once from the solitary glen and hill side to the various objects of a public highway, the coaches, carriages, &c., which perpetually interrupt their progress, are thrown into a disease which the shepherds very aptly term the *trembling*,—the sheep literally tremble to death: out of one drove we have heard of scores falling of this disease.—*Inverness Courier.*

Drink for Horses.

Some of the innkeepers on the western road have adopted the practice, recommended by a member of the Bath Agricultural Society, of boiling the corn given to horses, and giving them the water to drink; and they believe that three bushels of oats or barley, &c. so prepared, will keep the horses in better condition for working than four bushels in a crude state.—*Morning Herald.*

Pig-doctoring Extraordinary.

An elderly man, named William Reynolds, a poor but industrious weaver in Bethnal-green, appeared yesterday before the sitting magistrate, to seek redress under the following circumstance:—

The applicant stated that he kept a pig, which a few days ago appearing to him to be unwell, he asked Mr. Grace, a pig-doctor, to give his opinion relative to the animal. Mr. Grace, the pig-doctor, having examined the pig, told him that the pig had only got a bit of a cold, or what is commonly called the shivers, and that he would give it a comfortable drink in the shape of a bottle of medicine. Witness, being a very poor man, asked the doctor what the price would be; and on being told it would be 1*s*..2*d*., he agreed that the pig should take it. The doctor then gave the pig a dose of warm water, and went away, intimating his

intention of bringing the physic in the course of the evening. The warm water, however, appeared to have a wonderful effect upon the pig; for, in five minutes after, it ran up the street as well as ever. Nevertheless, witness told his wife, that in case the doctor should call in his absence, to let him administer the medicine to the pig, and pay him the 1*s*..2*d*. In the course of an hour and a half afterwards two men, named Howard and Keeley, came to his house, the latter representing himself as Mr. Grace's assistant, and that he had sent him with the bottle of stuff. Witness, seeing the bottle was broken in the neck, said, "For God's sake don't put that down my pig's throat, or you will kill him;" at the same time offering to fetch them a whole bottle. The men, however, paid no attention to his request; and one of them seizing hold of the pig, held it down until the other, with great violence, thrust the bottle and its contents down its throat; in doing which the bottle broke in its mouth, which was immediately covered with blood. Witness, however, paid them the 1*s*..2*d*., and the men left; but on going the following morning into the pigsty he found his pig lying on the straw, dead. "Your worship," continued the applicant, "it was a beautiful pig! it weighed fifteen stone and a half, and would have fetched, had I sold it to a butcher, £4 at the least. Suspecting that something poisonous had been given it by them, I sent for a pig-killer to open it; and I have now brought him here with me."

The pig-killer deposed to having opened the pig, and having found sticking in its windpipe three pieces of the glass bottle. "The pig," added witness, "was a very fine one, and a very healthy one." The applicant added, "that he had subsequently ascertained that the two men were not employed by Mr. Grace, the pig-doctor, but had learnt the particulars about his pig at a public house; and being half drunk, as he was informed, they played this cruel trick to get the 1*s*..2*d*. for more drink. Its a hard case, and a severe loss to me, your worship."

The magistrate, Mr. Bennett, said it was a serious loss for him, no doubt, but he had no business to allow the men to do it. It did not appear to be a malicious injury, and therefore his only remedy was by action. He might, if he liked, try the effects of a summons.

———— *Morning Herald.*

The Appointment of Professors in the French School.

The following is the "Programme" of the "Concours," which will be held in the ensuing spring for the appointment of two professors to vacant chairs at the Veterinary School at Alfort. We cannot say that we are friendly to these "*concours*." The man

who has forgotten many a point of minute anatomy might stand but a poor chance against a younker fresh from the schools, although he may possess a profound conception of the sterling and useful principles of physiology and pathology,—the result of long experience and anxious observation, and to which the other could not have the slightest pretension. Besides, we can readily conceive that the man possessed of high acquirements would rarely or never be induced to hazard, in such a contest, that reputation which it has cost him the labour of years to acquire. The best test of qualification is the opinion of his brother-practitioners, and of his pupils, if he ever had any. Their judgment, and particularly that of the latter, is seldom erroneous.

Our neighbours, however, are very fond of stage effect. We will give a brief sketch of the various acts of the play, and, from our souls, we pity the principal performer.

The first is the Chair of clinical instruction, surgery, farriery, and veterinary jurisprudence.

At the 1st Sitting of the Concours he is examined on anatomy and physiology.—At the 2d, on the natural history of domesticated animals, and the choice, breeding, and general treatment of them. —3d. On shoeing.—"A 4th!" On the application of physics, on chemistry, veterinary pharmacy, botany, and materia medica. "What, will the line stretch out to the crack of doom?"—5th. On the diseases belonging to surgery, and on operations. "Another yet?"—6th. On internal pathology and clinical instruction.—"A 7th!" On commercial veterinary jurisprudence. "I'll see no more:—and yet the 8th appears! who bears a glass which shews me many more!" A memoir on veterinary jurisprudence, and on the preservation of the health of domesticated animals.—9th. A memoir on shoeing, and on surgical operations. "*Ludicrous* sight! a 10th." Discussion on those portions of veterinary medicine which have reference to the vacant chair.

The candidates must be Frenchmen born or naturalized, and they must produce certificates of merit from the schools of Alfort or Lyons.

The second is the chair of physics, chemistry, and pharmacy; and here the aspirant is examined, on the 1st day, on physics, chemistry, and pharmacy.—2d. On the application of natural philosophy and chemistry to veterinary pathology and therapeutics.—3d. Written replies to questions on veterinary jurisprudence, and with reference to chemistry and pharmacy.—4th. Practical examinations on natural philosophy, chemistry, and pharmacy.—5th. Ditto, on veterinary surgery.

The qualifications of candidates as for the other chair.

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ANATOMY OF THE HORSE.

[Continued from page 17.]

VEINS.

THERE are ten radical veins, though no more than two of them possess a volume correspondent with the main arterial trunks: these two, denominated the *venæ cavæ*, may be looked upon as the fellow-vessels of the anterior and posterior aortæ: the other eight are the

PULMONARY VEINS;

Which vessels originate within the air-cells of the lungs, from the extreme ramifications of the pulmonary artery; and by repeated and reiterated union and coalescence, at length form themselves into eight venous trunks, which proceed directly from the roots of the lungs to the left auricle of the heart, and into that cavity empty themselves by four openings*.

VENÆ CAVÆ,

Anterior and *Posterior*, form the two main or general trunks of the venous system; the former receiving the blood returned from the fore parts of the body; the other, that flowing from the hinder parts. Their ramifications in most parts exceed, in number and size, those of the correspondent arteries; in addition to which, veins are found in many parts (and those mostly superficial) where arterial trunks do not exist; which excess of number and duplicity of course has caused a division of the veins into those that are *superficial*, and those that are *deep-seated*.

* The English veterinary professors reckon *eight* pulmonary veins; the French, but *four*. The disagreement arises from the former reckoning being made at the issue of the veins out of the substance of the lungs, and the latter being taken from their termination in the cavity of the left auricle.

TABLE OF THE VEINS.

- **ANTERIOR VENA CAVA**
  - Jugular . .
    - Auricular
    - Temporal
    - Int. Maxillary . .
      - Palato-maxillary
      - Infra-orbitar
      - Supra-orbitar
      - Ocular
      - Inf. Maxillary
      - Deep Temporal
    - Parotideal
    - Masseter
    - Pterygoid
    - Occipital
    - Submaxillary . . .
      - Facial
      - Labial
      - Varicose
      - Submental
      - Sublingual
      - Lingual
      - Pharyngeal
      - Inf. Laryngeal
  - Pectoral .
    - Thyroideal
    - Tracheal
    - Muscular
    - Cutaneous
  - Vertebral
    - Superficial Brachial . . . .
      - Muscular
      - Cutaneous
      - Anastomotic
  - Axillary . . . . . .
    - Ext. Thoracic
    - Humeral Thoracic
    - Dorsalis Scapulæ
  - Dorso-Cervical
  - Inf. Cervical
    - Subscapular
    - Humeral . . . . . .
      - Muscular
      - Articular
      - Ulnar
      - Radial
        - Anastomotic
        - Metacarpal .
          - Cutaneous
          - Articular
          - Anastomotic
          - Plantar *Ext.* and *Int.* . . . .
            - Articular
            - Perpendicular
            - Veins from the Laminæ
            - Veins from the Frog
            - Veins from the Sole.
  - Vena Azygos . .
    - Muscular
    - Post. Intercostals

- POSTERIOR VENA CAVA
  - Phrenic
  - Hepatic
  - Renal
  - Spermatic
  - Lumbar
  - Iliac . . . .
    - Muscular
    - Circumflex
    - Middle Sacral
    - Int. Iliac . . . . .
      - Ischiatic
        - Vesical
        - Anal
        - Perineal
        - Pudic
      - Lateral Sacral . . .
        - Perineal
        - Sacro-Spinal
        - Coccygeal
    - Ext. Iliac . . .
      - Inguinal
      - Cutaneous Abdominal
      - Femoral . . . . . .
        - Vena Saphena Major
        - Vena Saphena Minor
        - Muscular
        - Medullary
        - Post. Tibial . . .
          - Muscular
          - Medullary
          - Small Metatarsal
        - Ant. Tibial . . . .
          - Anastomotic
          - Large Metatarsal . . .
            - Ext. Plantar
            - Int. Plantar.

- Vena Portæ . . .
  - Splenic . .
    - Gastric
    - Omental
    - Pancreatic
  - Ant. Mesenteric . .
    - Cæcal
    - Colic
    - Gastric
    - Pancreatic
  - Post. Mesenteric . . .
    - Colic
    - Rectal.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

ON TETANUS.

By Mr. ALEX. HENDERSON, *Veterinary Surgeon to the Queen.*

[Read at the Veterinary Medical Society, January the 4th, 1832.]

MY time has been so much occupied since I selected the subject to be discussed this evening, that I fear I shall not be able to do it that justice I could wish. I shall waive all preface, and request your attention to a few cases of Tetanus that have come under my notice.

I will not detain you by describing the symptoms; you are all well enough acquainted with them, and, indeed, a case of tetanus, if seen once, can never be mistaken; but I wish that I could say something satisfactory of its nature and cause, or of any means that can be depended upon for its cure.

We know that every now and then a horse labouring under tetanus does get well, and are sanguine enough to think the treatment observed in this case may be as fortunate with the next, but we are generally wofully disappointed. This will go far to account for the various remedies employed by different practitioners at different times, and each in a case or two, perhaps, attended with success, and then again in a most unaccountable way failing: for this reason I conceive it to be a most difficult task to form a conclusion as to the best method of treatment we are to pursue.

Tetanus is said to be idiopathic and sympathetic. That it may be frequently idiopathic in the human subject I have no doubt, as the mind of a human being is susceptible of impressions which an inferior animal must be a stranger to; but I doubt very much whether the horse ever has the disease except from sympathy, and I think I am borne out in that opinion from *post mortem* examinations which have come under my notice. Although in many cases there have been no external symptoms apparent to lead me to account for the disease, on examination after death I have found *appearances* which left no doubt in my mind on the subject, although I might be at first tempted to consider the case to be idiopathic. I console myself, however, for having mistaken the sympathetic for idiopathic by the consideration that the sole means we have of ascertaining the presence of any internal derangement is by external signs, which we are not always present to observe,

and on the report of which we cannot at all times rely. In the human subject it is very different: if a person feels pain in the stomach, bowels, or any other part of the frame, it is immediately pointed out to the medical attendant, who can at once attack the disease in its head-quarters; but the veterinary practitioner is and must be chiefly dependent for information on persons, too often either devoid of common observation, or obstinately determined to keep him in the dark. I apprehend the effect of visceral derangement on the nervous system in many cases, as in some which I shall relate, may be so sudden and peculiar, that the animal, although he may be experiencing most acute pain, is prevented expressing it in the usual and recognizable way.

I shall now mention two or three cases as examples, but shall not enter into the minutiæ of treatment, as I am relating them principally from memory.

The first case was that of a carriage horse that I was called to in the morning, and told he was left perfectly well on the previous evening. He had all the usual appearances of tetanus; and although I examined him as minutely as possible, and finding he had been out the day before, I had all his shoes taken off, to ascertain if he had received any injury in the feet, I could not arrive at any circumstance to lead me to a probable cause. I bled copiously; gave aloes and calomel, with frequent clysters. The horse was excessively irritable, became rapidly worse, and died in about thirty hours. On opening him I found the stomach unusually distended with food, and an increased redness on its surface, with several crimson spots on the pyloric portion. The duodenum and jejunum were much inflamed, and the lungs gorged with blood. That, however, which attracted my attention more particularly was, the unusually vascular appearance of the large sympathetic nerves throughout their various ramifications in the chest and abdomen.

Another case I accidentally saw at the slaughter-house of a horse that had died of tetanus, and which disease, as I understood, could not be accounted for by any external symptoms. The owner, who was present, was very anxious I should examine him, which I accordingly did, and found the stomach much diseased in consequence of its containing an enormous quantity of bots, several of which had eaten through its coats, and were adhering to the outside. The sympathetic nerves in this case were similar in appearance to those in the former one, more particularly the branches surrounding the stomach. The owner of this horse assured me that the animal had never shewn any symptoms of sickness further than dulness and loss of appetite. He was a

young cart horse of small description. His lungs were not at all affected, which I consider rather an unusual circumstance.

The next case of apparent idiopathic tetanus occurred to a horse that had been lately taken up from grass; low in condition, with staring coat, and, altogether, an unhealthy appearance. On inquiry, I understood that the groom had given him a dose of mercurial physic; the quantity or composition I was not able to ascertain. He had had the physic about thirty hours, and although I questioned the attendants very particularly as to the horse having shewn symptoms of pain, I could not learn that he had. The moment I saw him I told them that I could give them no hope of recovery; the jaws were completely fixed, tail and ears erect, &c. &c. with cold sweat; in fact, a more distressing case I never saw. The horse, when well, was not a valuable one, I therefore recommended the owner to put him out of his misery as soon as possible. He consented, and wished me to examine him afterwards: I did so, and found a very considerable number of the large common ash-coloured worms (terites) in the stomach and small intestines. In some parts of the duodenum and jejunum the accumulations were such as to cause distention, and block up the passages. There was also a considerable quantity of mucus of an unhealthy appearance, and the villous coat had marks of irritation shewn by several parts of it being inflamed. There was no unhealthy appearance in the stomach, but the liver put on a very pale aspect. The sympathetic nerves in this case also were highly vascular. I examined the brain, and found the vessels of the pia mater unusually distended. The substance of the brain had a healthy appearance, but contained a rather more than usual quantity of water; the lungs were livid, somewhat tuberculous, and distended with blood. From the observations I have made, I am inclined to believe that, however difficult it may be to judge of the cause of an attack of tetanus in many instances from the absence of symptoms, yet in almost every case we may, by a careful examination after death, satisfy our minds in that respect. I will beg to state, that being called upon by our respected Secretary for a subject for discussion, it occurred to me that a few observations on this disease might be the means of producing a useful evening's discussion; and I beg to be understood that I do not presume to imagine similar inquiries and results have not occurred to many other of my professional brethren, although I do not recollect having seen the disease treated on by any veterinary writer, except in very general terms. I can only say, I shall feel highly gratified if the observations I have made should tend to induce among veterinarians generally a strict examination into its

cause. I have no doubt by so doing a fund of useful knowledge may be elicited.

Now, with regard to tetanus arising from external injuries or other obvious causes which we term sympathetic; a horse receives a wound, punctured or lacerated; suppose it to be the latter, as in the instance of a carriage horse belonging to a nobleman by whom I am employed, and which had a broken knee. I was not called in until the wound was nearly healed; healthy granulations had formed, and the cicatrix was rapidly completing, but the horse was found one morning with his jaw closely locked, and as stiff all over as a statue. I recommended that he should be destroyed, which was done very soon afterwards, when I had an opportunity of examining him. The sympathetic nerves in this case were also affected, but more particularly on the left side (it was the near knee that was broken); those of the axilla were most decidedly vascular. The villous coat of the stomach and small intestines put on a slight appearance of inflammation.

I have seen a case of tetanus, produced from a wound in the foot, cured by the operation of neurotomy; I have also known the same treatment in other cases fail: so also, in tetanus arising from docking, horses have recovered by the diseased part being removed; other cases of the same kind have failed. I particularly recollect having examined one case, where I found the spinal nerves very vascular, and the intestines bordering on inflammation. These appearances naturally lead me to a belief that, unless an operation can be performed in a very early stage of the complaint, we have but little chance of success.

I shall now draw towards a conclusion by relating, as well as my memory will permit, two successful cases which have come under my knowledge not very long ago. In the first, a half-bred buggy horse received an extensive lacerated wound in the fore arm, extending round the knee. He was attended by a very respectable veterinary surgeon, who was using his utmost exertions to heal the wound with as little blemish as possible. The wound was doing well; but the horse being excessively irritable, symptoms of tetanus came on, which although they were decided, were not violent. I was consulted, and we discontinued the bandage, and applied fomentations and poultices. He had had physic; and I recommended a ball consisting of a drachm of opium and two of aloes twice a-day; this treatment was continued, with trifling alteration, for about ten days, carefully avoiding any thing which might produce constitutional irritation. The wound healed with very little blemish, and the horse is now at work in good health.

The next case was rather singular, inasmuch as the horse was of an indolent disposition, and I was not able, by the strictest in-

quiry, to elicit the cause. The only way in which I could account for his attack was the probability of his having been over driven; however, he was found in the morning with his head stretched out, ears and tail erect; in short, decidedly tetanic. My assistant saw him first, and bled him copiously, and with difficulty got a ball down containing eight drachms of aloes and one drachm of calomel. We emptied the rectum by means of clysters, which were repeated frequently until the ball operated, which it did in the course of the night in a slight degree: I then continued to give small doses of aloes and opium, keeping up a perpetual blister on the throat, and in about three weeks he was sold at Morris's; and I have seen him about the streets perfectly well several times since.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE V.

The Veins of the Nasal Cavity—Hæmorrhage from the Nose—The Nerves of the Nose—The Sense of Smelling.

The Veins of the Nose.—The Schneiderian membrane being so plentifully supplied with arterial vessels, the veins are proportionally numerous and large. They do not, however, pursue their course in the usual manner, but are continually running into sinuses, and particularly on the lower part of the nasal cavity, and on the inferior turbinated bone. This accounts for occasional hæmorrhage from the nostril of the horse from very slight causes, and for the difficulty of arresting it. A sinus, or reservoir of blood, so superficial and ill defended, is easily ruptured, and, there being little contractile power in such a vessel, the orifice is with difficulty closed.

Spontaneous Hæmorrhage from the Nose in the Horse.—The horse is more subject than any other domesticated animal to *epistaxis*, or spontaneous hæmorrhage from the nostril, and the discharge of blood is sometimes very great. The bleeding is with great difficulty arrested, and the habit of recurrence is too easily formed. The application of cold is usually employed to stay the bleeding, but generally without success. The nasal cavity is large, and it is difficult or impossible to discover the precise spot from which the hæmorrhage proceeds. I have employed water artificially cooled to some degrees below the freezing point, over the whole surface of the nasal and superior maxillary bones, and that until I was heartily tired of it, and my hands were almost

frozen, without the slightest avail. I have injected solutions of alum and sulphate of zinc and catechu with no better result. The structure of the velum palati renders it impossible to fix a compress in the upper part of the nostril by means of any string passed into the back part of the mouth; and the impossibility of preventing a horse from sneezing when he feels the inconvenience of a tent lower down, cuts us off from these mechanical means of plugging up the passage, and forming a coagulum on the orifice of the ruptured vessel. Generally speaking, therefore, we are passive spectators; and, if the horse is in good condition, we entertain no immediate fear, for the discharge may be beneficial rather than otherwise. The principal apprehension is with regard to the formation of the habit. A horse that was subject to these periodical discharges, and which neither bleeding from the jugular nor physic could prevent, was, one morning, found dead in his stall, and his blood covered the floor of the stable.

Repeated hæmorrhage from the nose has preceded glanders; the chronic or half-healed ulcer has taken on a chancrous character. Somewhat low diet, mashes, diuretic or slightly aperient medicine, so as not to interfere with the work of the animal, are indicated when there is this tendency to spontaneous hæmorrhage; and, more particularly, it is necessary that the horse shall not be too tightly reined, and that the collar shall not press upon the jugular at the lower part of the neck.

Spontaneous Hæmorrhage in the Ox.—Oxen, and especially those that are worked, and that are in tolerably high condition, are also subject to epistaxis. An ox too long and too hardly worked during the heat of a summer's day, will frequently bleed from the nose; but I fear that the hæmorrhage is too often occasioned by blows on the nasals or on the muzzle, inflicted by a brutal drover or ploughman. The bleeding has gradually stopped, and I am not aware of any case in which unpleasant consequences have ensued.

Leeches producing Hæmorrhage from the Nose.—I have heard of leeches having fastened on the muzzle, and thence crept into the nostril of the ox and the horse, and particularly of the latter, when drinking from a stagnant pond. These blood-suckers shifting from place to place in the nostril, and biting here and there, a considerable hæmorrhage has been produced. If the leech can be seen when the nostril is examined in a good light, or if its presence is strongly suspected, some salt and water should be injected into the nose, for by this the intruder will be speedily detached. The bleeding from the slight wounds of a leech-bite will soon be stayed.

THE NERVES OF THE NOSE.

This cavity is as plentifully supplied with nervous ramifications as with bloodvessels. First, there is the nerve of peculiar sensation—*the olfactory nerve,* of which I shall have presently more fully to speak; passing through the numerous apertures of the cribriform plate, and spreading its pulpy matter over the whole of the nasal cavity, and probably over the membrane of the sinuses connected with this cavity; but most evidently to be traced on the upper part of the septum, and on the æthmoid and superior turbinated bones. On this nerve depends the *sense of smell.*

Of nerves of *common sensation* we have, first, the *palpebro-nasal* (the *lateral nasal* of Mr. Percivall), a branch of the ophthalmic, parting from it at the base of the orbit, between the levator and the retractor muscles, and entering again the cranium; pressing through the cribriform plate, and ramifying minutely, and with many beautiful anastomoses on the æthmoidal cells, the frontal sinuses, the turbinated bones, and the septum; a branch of it creeping along the top of the inferior turbinated bone, and sending its ultimate branches to the false nostrils, but other branches from other portions of it ramifying also on the false nostrils, and the alæ of the nose.

There is also the true *lateral nasal,* a branch of the anterior maxillary passing through the spheno-palatine foramen, and dividing; giving one branch for the external wall of the cavity, and another for the septum and the posterior part of the cavity generally.

One branch runs along the bottom of the septum to its anterior extremity, and through the foramen incisivum to the roof of the mouth. It sends a twig to the naso-palatine ganglion, and anastomoses with the palatine, and so completes the circle of nervous influence between the palate and the nose,—that connexion between the senses of taste and of smell, of which we have a thousand proofs.

The *anterior maxillary* nerves give many filaments to the alæ of the nose.

THE SENSE OF SMELLING.

The sense of smell is mostly connected with our enjoyment; occasionally, however, it is a source, perhaps a useful one, of inconvenience and annoyance. In the quadruped it is connected with life itself; it is that by which the animal is guided in the choice of wholesome food, and by which also he is chiefly led to the perpetuation of his species.

The Olfactory Nerves.—The olfactory, or first pair of nerves, have a double origin, viz. from the corpus striatum, and the base of the corpus callosum. They seem to be prolongations of the medullary substance of the central portion of the brain. They are the largest of the cerebral nerves. Compare their development with that of the olfactory nerves of the human being. There is a remarkable difference, but not more so than in function ; for in the one they are connected with pleasure and in the other with life. Their course is short, exceedingly so ; and they have not a single anastomosis, in order that the impression made on them may be conveyed undisturbed and perfect to the brain.

The olfactory nerve is a prolongation of the substance of the brain, and it abuts on the cribriform plate which I have described. I will not speak of the singular cavities which it contains, nor of their function ; this belongs to the sensorial system : but it is in contact with the thin perforated plate of bone occupying the chasm between the base of the æthmoid bone and the frontals, and is in a manner pressed through this cullender-formed plate, and its pulpy matter is clearly to be traced over the upper part of the septum, and over a part of the superior turbinated bone. Although we soon lose it in the mucous membrane of the nose, we think we are warranted in concluding, that in a more filmy form it is spread over the whole of the cavity, and probably over all the sinuses of the face and head. It is, however, so mingled and incorporated with the mucous membrane, that no power of the lens has enabled us to follow it so far. It is like the *portio mollis* of the seventh pair, eluding the eye, but existing in sufficient substance for the performance of its important function.

An acute sense of smell is necessary to the quadruped. Every plant has its peculiar scent, and probably a scent of a marked character as connected with nutrition or destruction. We find out something of this by experience ; the brute learns it from mingled experience and instinct. Without instruction and without experience, the beast has generally some salutary warning to guide him to that which is nutritive, and to warn him from that which would be poisonous. He is, however, sometimes deceived ; but that is only in the early part of the spring, when the scent of the infant plant is not developed. Horses at grass are frequently ill at that time, and cattle more seriously so, and, occasionally, they are actually poisoned. When the great Linnæus visited Tornea, the inhabitants complained of a distemper which killed many of their cattle, and especially when first turned out into the meadows in the spring. He soon traced the disorder to the water hemlock, which grew abundantly there, and which in the spring

the cattle did not know how to avoid. Instinct is not an unerring guide; it is a powerful principle, and was wisely and kindly given where reason is limited: it does not, however, always guide the animal, when placed in an unnatural situation, or shield him from the consequences of our absurd management. When our calves and lambs are taken too soon from the dam, and turned with little or no experience into the pasture, they eat indiscriminately every herb that presents itself, and many of them are lost. Had they been suffered to browse a little while, or a little longer, with the mother, she would have taught them to distinguish the sweet and wholesome herbage from the deleterious and destructive. This is a point of agricultural economy not sufficiently attended to.

For the immediate and natural purposes of the animal, instinct is strong, but Nature has made no provision for our folly. Galen once took a kid from the womb of its mother, and carried it into an adjoining room. He had previously prepared three dishes, containing various sweetened and tempting things, and one of corn and one of simple milk. The little animal, after having licked and cleaned itself for awhile, got up and smelled at every dish, and began to lap the milk, and drank it up. Here instinct was as strong as the purposes of the creature required. Milk was destined to be his first food, and instinct led him immediately to that. But nature designed that he should be gradually accustomed to his after-food by the side, and under the tuition, of his dam. But if the farmer, from ignorance or caprice, or because he thinks he can rear a few more calves, or bring his lambs or their mothers earlier to the market, separates the one from the other, and turns out his young stock to browse, inexperienced and untaught, why he must take the consequence of his folly and his avarice. This is a lesson in breeding or in grazing which we possibly may be enabled usefully to inculcate in our employers.

The comparative Size of the Olfactory Nerve in different Animals.—Observe, in the specimens before you, the greater size of the olfactory nerve in the horse, the ox, the sheep, the swine, and the dog, and its peculiar form, as well as size, in the bird, compared with that nerve in the human brain. Again, compare the relative size of this nerve in the different animals, accordingly as they need, and possess, an acute smell. See the brain of the *horse*—our stabled servant—comparatively rarely sent to select his own nutriment amidst the herbage of the field, but having the greater part of his food provided for him. Next observe the brain of the *ox;* it is not more than half the size of that of the horse: he possesses not the intelligence of the horse; but not being so much domesticated, being oftener sent into the field to

shift for himself—or, if worked by day, usually turned out at night—the olfactory nerve is nearly as large as that of the horse, and, comparing the bulk of the two brains, a great deal larger. The olfactory nerve of the *sheep* and the *swine* is comparatively as large as that of the ox, or more so, and for the reason already assigned; and, lastly, observe in the *dog* the still greater bulk of this important portion of the brain.

The comparative Bulk of the Æthmoid Bone.—I have said that we can plainly trace the nervous pulp over the æthmoid and upper turbinated bones; we suppose that it spreads over, but not in so great a quantity, the other contents of the nasal cavity. See then the increased bulk of the æthmoid bone of the *horse* compared with the human being: the æthmoid bone of the *ox* is considerably larger; that of the *sheep* larger still; and that of the *dog* occupying the whole of the upper part of the cavity, and thrusting the cornets from their situation, and rendering them comparatively diminutive and insignificant.

The Acuteness of Smell in different Animals.—Observe all our domesticated animals how carefully they examine their food and their water, and judge of their good or bad qualities by the smell. They submit every stranger to the scrutiny of this sense, and form their opinion of him, and even of his intentions, by the intelligence which they obtain through its medium.

In the Dog.—Passing by all the others, we trace in the dog the triumph of olfactory power. How indistinct must be that scent which is communicated to, and lingers on the ground, by the momentary contact of the foot of the hare, the fox, or the deer! Yet the hound, of various breeds, recognises it for hours, and, some sportsmen have said, for more than a day; and he can not only distinguish the scent of one species of animal from another, but that of different animals of the same species. The fox-hound, well broken in, will rarely challenge at the scent of the hare, nor will he be imposed upon when the crafty animal that he pursues has himself taken refuge in his earth, and thrust out a new victim before the pack.

The bloodhound in former days, and even in modern times, cruelly and disgracefully trained to the scent of the human being, but now in his legitimate office the guardian of the deer or of the mansion, gives interesting proof of almost incredible acuteness of smell.

A miscreant had broken into a gentleman's stable, and mutilated some of his horses. When this was discovered on the following morning, a bloodhound was brought out. After awhile he hit off the scent, and followed it more than fifteen miles. He then bayed at a cottage door, and, the door being opened, he

rushed up stairs, and would have torn to pieces a man who was a-bed there, had he not been prevented. It was a discarded servant, who, instigated by a spirit of revenge, had committed the atrocity.

The most interesting case I know of this acuteness of scent had reference to a shepherd's dog, a *colley*. It is related by the Ettrick Shepherd, and he shall tell it in nearly his own words.

"A young man, his first offence, selected some sheep from the flock of a former master, and set off with them towards Edinburgh. But he had not gone quite off the farm before his conscience smote him, and he quitted the sheep, and let them go again to the hill. He called off his dog, and, mounting his pony, rode away. After having proceeded about three miles, he thought he heard something coming up behind him, and in a few moments he saw his dog with the stolen sheep, driving them at a furious rate to keep up with his master. He was exceedingly troubled, for, the sheep having come so far from home, he dreaded there would be a pursuit: he beat the dog for the uncalled-for interference, and rode off a second time, taking the colley with him. He had not ridden above a mile before he perceived that his assistant had again given him the slip, and, suspecting for what purpose, he was terribly alarmed as well as chagrined. He resolved to abandon the animal to himself, and took a road across the country which he was sure the other did not know and could not follow. He pursued a circuitous course through some lanes, and at length arrived at a gate which he opened and shut behind him; and, half a mile farther on, he called at a farm-house and breakfasted. As he was about to start again, a person told him that he need not hurry himself, for his dog had got the sheep safe enough down at the crooked gate. After this it was impossible for the poor fellow to get rid of them, and so he took possession of them and drove them on, and sold them, and the transaction cost him his life. The dog, for the last four or five miles he had brought the sheep, could have no other guide to the road his master had gone but the smell of his pony's feet."

In the Swine.—The scent even of the *pig* is acute enough. I have spoken of his discovering the earth-nut and the truffle many inches under ground. It is a well-authenticated fact, that a gamekeeper once broke in a sow to hunt partridges, and she was as sure a finder and as stanch a backer as any pointer that could be brought into the field.

In Birds.—Of the accuracy of the stories of the wonderful scent of *birds* I have considerable doubt. That their sense of sight is exceedingly strong I can readily believe; for they have

a peculiar mechanism by which they can, at will, convert the eye into a telescope of extraordinary power : and I imagine that it is by the sense of sight principally that they distinguish their prey. They are said to recognise the peculiar smell of approaching death. The crow and the raven will hover over the weakly lamb, and sometimes attack him before he is dead. Who has not observed, with a thrill of horror, the vultures following the ill-fated Mazeppa, in that beautiful engraving depicting his cruel punishment? I do not imagine that the scent is here concerned, but they see that their destined prey is weak and nearly exhausted, and are hovering round to pounce upon it as soon as, or before, life is extinct.

If the sense of smell be thus acute in all our patients, we account for it as a provision wisely and kindly made to guide them to their proper food, or fit them for our service; but there is an important use that we may possibly derive from our knowledge of this extreme sensitiveness, namely, to guard a little the membrane of the nose from some of the injuries and dangers to which it is exposed. Persons bottling a considerable quantity of spirit have become partially intoxicated by the impression of the vapour of the liquid on the nerves of the Schneiderian membrane, whether the sensitive or the olfactory. One of my men used to be regularly purged when he pounded aloes.

The Membrane of the Nose is a vulnerable Part.—Contagion results from certain miasmata or poisonous particles diffused through the air. Their impression may be made on the Schneiderian membrane and not on the lungs, or, at least, principally on that membrane. I consider the membrane of the nose (and thus I shall have to describe the larynx to you) as a guard to the lungs. Of the more solid particles which enter the nostril, few or none are permitted to reach the lungs, and not even the larynx. I might appeal to the habitual snuff-taker in proof of this. He may load his nostril as he will, but not one atom of the deleterious powder reaches the lungs. So the deleterious gases are arrested, possibly absorbed, by the mucous membrane on which they impinge.

The Schneiderian membrane, then, is probably *a vulnerable part.* It may be the medium through which much evil is communicated, and contagion conveyed. The particles may not be sufficiently numerous or powerful to reach or dangerously affect the lungs, but they are arrested by the mucous membrane of the nose, and absorbed by it, and the constitution becomes thus affected. A smaller quantity of poisonous exhalation or gas may here make its fatal impression. There appears the greater necessity for attention to ventilation, and especially for preserving this

membrane from being habitually stimulated and debilitated by the effluvia of a close and heated stable, and thus, more than naturally, disposed to take on disease.

On the Influence of what Nerve does the Sense of Smell depend?—M. Majendie has made some curious experiments on dogs, from which he has drawn the singular conclusion, that the sense of smell does not depend, as we have been accustomed to imagine, on the olfactory nerve, but on the fifth pair. As the experiments were made on one of our patients, and relate to the subject of our present lecture, it is necessary that I should notice them. He first divided the fifth pair of nerves, and from this moment no puncture, no corrosive substance, no penetrating odours, not even those of ammonia and acetic acid, produced the slightest visible impression on the membrane of the nose. In another dog he destroyed the two olfactory nerves, and he presented to the animal strong odours, of which he evidently was conscious of the usual and full effect, and he conducted himself exactly as he would have done had he been in his ordinary state. M. Majendie then made some trials with weak odours, such as those of aliments, but he could obtain no results sufficiently distinct to enable him to affirm that that kind of odour acted upon the nose of the animal: and thence he concluded, that it may be possible that the olfactory nerve is not the nerve of smell, and that the olfactory sensibility is confounded with the general sensibility of the same nerve. I have here quoted the substance of what he states in his Physiology, and which is abridged from his Physical Journal.

Let us consider this a little. I will take the second experiment first. He divides the olfactory nerve, and he presents to the animal strong odours, and the dog is as sensible to their impression as he was before. The odours of which he made use, as it appears from his Journal, were ammonia and acetic acid. Now, on what nerve do they make their chief impression? On that of common or peculiar sensibility? When I go into a close stable in the morning, and the conjunctiva is irritated, and my eyes weak, which are the affected nerves? Decidedly those, and those only, of common sensibility. From what does the snuff-taker derive his chief pleasure, but from the titillation of the nerves of common sensation? And it is the impression which is made upon *them* that causes the violent sneezing of the unpractised snuff-taker. M. Majendie had divided the olfactory nerve, and the natural effect followed; the nerves of common sensibility were still affected by the pungency of the ammonia, as the conjunctiva would be; and he candidly adds, that he could not perceive that weak odours then acted upon the nose.

He also divides the fifth pair, and the animal no longer shrinks or sneezes when the ammonia is applied,—and for the plain reason, that the nerve of common sensation is destroyed. But what does the dog do? He does that which M. Majendie confesses in his Journal, but does not state in his Physiology. When food was offered to him rolled up and concealed in paper, he unrolled the paper, and got at the food and ate it; that is, although he had lost the common sensibility of the part, he still was acted upon by the odour of the meat; or, in other words, the true olfactory nerve still remained entire. I confess that the experiments of M. Majendie are satisfactory to me, but I draw a conclusion from them precisely the reverse of that which he did.

Thus far, however, I am ready to go with him, that there is a mysterious connexion between the nerves of common and of specific sensibility, and that their agency must be combined in order to render the function of either complete; and that, for this reason, it probably is that they run to the same part, and ramify over the same tissue. I see in every portion of the frame, the nerves of organized animal life combining their influence in the discharge of the most important functions—they are in a manner necessary to each other; but I can separate them from each other in my mind, and I can give to each its peculiar agency. So here I see the nerves of common and peculiar sensation combining for the perfection of the sense of smell. I can believe that the influence of the fibrils of common sensation on the tissue may dispose the nervous pulp of peculiar sensation more acutely to receive the impression, and to convey it to the common sensorium; but the very experiments of M. Majendie convince me that the olfactory nerve is the nerve of smell, and that the fifth pair is the common sensitive nerve of the face.

THE APPOINTMENT OF VETERINARY PROFESSORS.

To the Editors of "The Veterinarian."

Gentlemen,

Refering to the notice of the "Concours" about to be held in the ensuing spring, for the election of two professors to the vacant chairs at the Veterinary School at Alfort, and to your pertinent observations thereon, I take the present opportunity of offering to you what have long been my own sentiments on the same subject.

I most cordially agree with you, that "the man who has forgotten many a point of minute anatomy might stand but a poor

chance against the younker fresh from school," although his intrinsic and serviceable knowledge would admit of no comparison with the acquirements of the tyro; and yet (seemingly paradoxical enough) such scholastic learning forms the basis of all that age and experience can boast of. I also can feel with you, that "the man possessed of high acquirements could rarely or never be induced to hazard in such a contest his reputation, which it has cost him the labour of years to acquire."

And having thus politely assented to these two propositions of yours, I trust you will not be so ungrateful as to turn your back upon one I am now going to make, which is this:—that unless you can devise some *safer* mode of election, you had better (even with its confessed objections) adopt this French plan.

Let us see how we English (who are so fond of picking holes in our neighbours' coats) ourselves proceed in such concerns. Most of our *public* medical lecturers, though not in public service or pay as such, become so *ex officio*, by virtue of their office or rather *function*, as surgeons or physicians to public hospitals, dispensaries, &c., not *necessarily* but *implicitly*, in consequence of the advantages they possess to render them teachers, and of the superior degree of public confidence and estimation with which they are generally in such situations honoured.

And now for the *election* of these hospital and dispensary surgeons and physicians—how is *this* conducted? By a majority of votes, which votes are the property of the subscribers or members, the upholders and supporters, in fact, of the institution. And pray who are these subscribers or members? They are lords and ladies, tinkers and tailors, and the "Lord knows who;" in a word, they are the *public*.

Now, then, we come to the point. You say, "the best test of qualification is the opinion of his *brother-practitioners* and of his *pupils*, if he have any: their judgment, *and particularly that of the latter, is seldom erroneous.*" Agreed. Would it not be a preferable plan, then, that hospital surgeons and physicians should be created such from their talents and abilities as *lecturers and teachers*, and not become lecturers and teachers because they happen to be hospital surgeons?

What affords a medical man the best chance of succeeding in an election for an hospital surgeoncy? Is it talent, or professional abilities, or acquirements? Or is it interest of every or any other kind but that which is due to the candidate from his professional fitness for the vacant office? Answer this, ye metropolitan citizens; and you likewise, ye great men of the west, answer; is it a man's own worthiness and worthness that ye inquire into when he comes to "solicit your vote and interest;" or is it not some

motive that shall be nameless, or perhaps worse even than that, no motive at all, that prompts you either to countenance or discountenance the supplicant, as "best seems meet to you?"

I fear this picture of an English medical election will bear but an ill comparison even with the French "concours." The latter is certainly not the most eligible and congenial mode of testing a man's qualifications, it being an ordeal under which a "younker fresh from school" may outshine an experienced veteran; at the same time it is a mode of proceeding that shuts the door against ignorance and presumption, and that is more than can be said of the other.

If you require further proof than this of the superiority of the French mode of electing medical officers and teachers in comparison to our own, look at the French professors at public medical institutions, and then look at our own. Look at the French veterinary professors likewise, and look at our English ones. Will they bear a comparison? What have the former done for the science and for their schools; and what have we to thank our worthies for? Depend upon it, if this "concours" were introduced into our elections in this country, even with "all its imperfections on its head," we should not long after (as our prospect seems now for years to come we shall) have to worship "ignorance and empiricism in the garb of science," and be forced to acknowledge the *shadow* in the place where we ought to find the *substance*. In fine, in its present lamentable condition, one of the very best changes that could happen to the veterinary profession, in my humble opinion, would be the establishment among us of the French "concours." Better, far better, had we look up to youth, the true and genuine scion of science, than have to behold grey hairs and ignorance usurping its place.

Your obedient servant,

SCRUTATOR.

INQUIRY CONCERNING THE ODIHAM VETERINARY LIBRARY.

By V. S.

London, January 16th, 1832.

Messrs. Editors,

WILL you have the kindness to inform me *what has become* of the "excellent agricultural and professional library," which we are informed by your correspondent Agricola was presented to the Veterinary College at its institution, by the Odiham Agricultural Society? Or, should you be unable to afford me the re-

quired information, perhaps some of your subscribers will do me that favour.

I cannot deny but that I have both heard and read of this said library, in times and on occasions afore. But never, while even I was a pupil myself at the Veterinary College, did I behold one book or leaf belonging thereto. In fact, it has ever, within my remembrance, been a *crying evil* that *no library was to be found within the college walls;* at least none that was (as most undoubtedly it ought to have been) accessible, or in any way made available, to the pupils.

All this to me seems strange—most passing strange! Do, pray, Messrs. Editors, unriddle the affair for me, and relieve my mind; for I assure you it has not been at rest since this novel intelligence of Agricola has burst forth upon it.

Your's,

V. S.

PS. Should you not have it in your power to satisfy me on this point, perhaps Agricola himself would kindly make us acquainted with the terms or conditions (if there were any) on which the library was presented; into whose hands it passed; and whether it can be made available to the veterinary pupils or members. Perhaps some instructions (on record in the books of the Odiham Society) accompanied the presentation; and if this were the case, their transmission to The Veterinarian (by Agricola) would be rendering a kindness to a profession who are already indebted to him for his disinterested friendship.

DEFENCE OF MR. VINES'S PUBLICATION ON GLANDERS, WITH A CASE OF ITS SUCCESSFUL TREATMENT BY CANTHARIDES.

By Mr. R. Pritchard, *Wolverhampton.*

Audi utramque partem.

On perusing The Veterinarian for January 1832, I found as follows, from Mr. Karkeek:—"I wish I could congratulate the sub-demonstrator of the College, Richard Vines, Esq. on the employment of cantharides in glanders. I gave his prescriptions a fair trial in several instances, but without success. He has taken much trouble to write his book, but I fear without much practical benefit to the profession." I have but little time to spare for communicating with The Veterinarian, although I consider it a valuable work to the profession, and always feel

much gratified in its perusal; and if I was but as quick with my pen and *ipse dixit* as some of my professional brethren, the Editors would much more frequently hear from me. But engaged, as I am, it was impossible for me to allow those observations of Mr. Karkeek to pass without saying a something in reply; because I entertain a different opinion of the work, and my experience of the use of cantharides is quite the reverse. From the very great advantages I have had of witnessing the progress and termination of that dreadful scourge to horse-flesh, in which disease I have witnessed the constitution so variously attacked, I have some time since concluded a specific remedy never will be found for the cure of glanders. I quite agree with Mr. Vines, that what we call glanders in the horse, is no more nor less than the sequel of organic lesion, produced by other diseases, unwholesome food, &c. And now, having stated my belief in his theories, allow me to make a few observations in support of them. If Mr. V. has not discovered a specific cure for glanders, in all its forms, which probably some subscribers to his book expected to find on perusal of the work, a discovery to which the language has no pretensions, Mr. V. has certainly given us the most feasible description of the origin and nature of the disease of any thing yet offered to the profession: he has thrown, if not a new, a further light upon that part of our pathology.

M. Dupuy first called the attention of the profession to tubercles, as the cause of glanders, but he mistook the effect for the cause, and left us in the dark at a very important point, viz. "that tubercle is the product of an unknown cause;" but Mr. V. tells us that tubercle is the effect of inflammation in an unhealthy constitution. This is as rational and clear to me as the language of Sir Astley Cooper, who, speaking of the different results arising from inflammation in healthy and unhealthy constitutions in the human subject, says, "Let us suppose that two women receive each a blow on the breast, one with a healthy and vigorous constitution, and the other with a system worn down with care, anxiety, and disappointment, and in a constant state of chronic feverish excitement, in which the secretions are imperfectly performed: in the first individual, the inflammation produced will be strictly healthy, going through its different stages, until the cure is accomplished; but in the other, owing to constitutional peculiarity, the same extent of injury will produce cancerous disease; an affection over which all remedies, hitherto tried, have little control, and extirpation is but an uncertain mode of relief." And most assuredly is inflammation in the various textures in unhealthy constitutions of horses attended with the same destructive results, although it may not be of the same description and

character of that of the human subject. If glanders is generated in the constitution of the horse, which I believe to be far the most frequent case, that constitution must necessarily be unhealthy; it constitutes the susceptibility to become glandered; and I am of opinion it is very difficult to produce the disease by inoculation in horses whose constitution is perfectly healthy. And, by the by, I would here observe, that fine coats and fulness of flesh are not in all instances a guarantee for health: I have often found, on examinations of bodies after death, chronic disease of the liver to a very great extent, scrofulous tumours in the mesentery of large magnitude, and astonishing numbers of worms in the intestines of horses whose external appearances during life were of the most beautiful character. It has been said that in those cases of catarrh, &c. which degenerate into glanders, the seeds of that disease may have been previously sown in the system which only awaited some diseased or altered action to bring them into operation. I must confess the term *seeds* of a disease is too vague and indefinite language for my comprehension, unless it means those tubercles or cellular abscesses which in some degree resemble certain vegetable seeds. And may not those tubercles or abscesses found beneath the mucous membrane of the nasal cavities be formed by the same causes in precisely the same manner as those in the lungs, and arrested in their progress to suppuration by a removal of that which gave rise to their cause? And in the same manner as a new inflammation brings about suppuration of tubercles in the lungs, may not catarrhal inflammation forward the suppuration of those tubercles in the nasal membrane, and produce the disease locally, or what we call chronic glanders? which stage continues, provided the horse is well-fed and not over-worked, for a considerable period, without otherwise affecting the animal than nasal discharge and enlargement of the submaxillary gland on the same side as the nostril affected.

I fear I am intruding on the pages of your valuable Journal, and will now close my remarks on the use of cantharides. As regards the curative intentions in glanders, every experienced practitioner is fully aware of the success of the tonic plan of treatment; and as a stimulant to the stomach in marked debility with loss of appetite, cantharides has exceeded my most sanguine expectations: in my practice I have not confined their use to the cure of glanders, but have experienced the very best effects from them in horses with light bodies, and delicate feeders. I have always administered them in small doses, to which has been carefully added those indispensable auxiliaries, regular feeding, good grooming, and suitable exercise to the condition or state of my

patient, allowing occasional intervals whilst giving this medicine, and never have as yet witnessed but the very best effects. The following is one of the numerous cases which has occurred in my practice, shewing the beautiful efficacy of cantharides.

A chesnut mare, five years old, the property of Mr. T. H. Ward, Wolverhampton, became my patient on the 11th March, 1831. She appeared blotched about the back and near shoulder, from serum under the skin, besides which the groom had observed intestinal worms voided by her; and I, knowing her to have been well fed with corn and doing little work, suspected a morbid habit of body to be present, and accordingly administered a mild purge of calomel and aloes on the evening of the 12th.

13*th.*—Purging moderately.

14*th.*—Bowels set. I see no more of her until the 21st, when Mr. Ward desires my attendance: I found her with a considerable swelling of the submaxillary gland, on the near side, hot and painful to the touch; with loss of appetite, or rather neglecting her food, apparently from pain in the jaw. She is removed to my stables; takes an aperient ball, and a poultice of fine bran or sharps is applied to the tumour.

23*d.*—The tumuor has suppurated; it is lanced; pus is discharged freely.

25*th.*—Feeds still very sparingly, and bowels costive; takes a laxative.

27*th.*—Bowels open.

28*th.*—Purges: flour gruel with prepared chalk.

29*th.*—Bowels set. Tonic balls are given up to April 2d: legs begin to fill; falls away rapidly, and feeds very sparingly; eats nothing but a little hay; refusing oats, and oats with bran. The ulcer healed, and swelling nearly gone.

I now gave her mild diuretic medicine daily, and ordered walking exercise, for half an hour, morning and evening: grows weaker; her legs increase in size daily; anasarcous blotches, like unto a rash, break out all over her body; and the nose and face considerably swell from anasarcous collection, so that by the 10th my patient is a pitiable looking object. On examining the pituitary membrane, I find it spotted with red blotches, and, in other parts, turning of a copper colour. I was perfectly satisfied she could not be long in this state without becoming glandered and farcied. I on this day commenced giving her cantharides, in three grain doses, with gentian and ginger, of each two drachms; treacle, a sufficient quantity, daily; and ordered the groom to give her oats and beans in small quantities, and often; water, in small quantities, seven or eight times a-day, the same with her hay; to be bandaged as high as the knees and hocks with flannel rollers, exercised as before, and well groomed or dressed.

By the 17th she is feeding very much better, and her legs are daily growing finer. The blotches are out very thick about her body and thighs on one day; the next, perhaps not one to be seen, but as fine all over as possible.

18*th.*—Cantharides increased to five grains, and steadily attended to, avoiding wet and exposure to cold as much as possible during exercise.

23*d.*—She has now taken eight doses, containing three grains of cantharides, and six doses containing five grains. She is become very lively; feeds well; her legs quite fine, and altogether very much improved and grown in flesh, but the nasal appearances are the same, and the anasarcous blotches appear and disappear as before described: medicine discontinued to the 28th. I now gave three grains and a half of cantharides; and again on the 29th and on the 30th commenced with seven grain doses of cantharides; the quantity of gentian and ginger as before. She continues feeding very well, and is lively; improves in condition.

May 6*th.*—Medicine continued; to-day, a little more œdematous about the nose and chest, and a good deal blotched, but feeds well and is lively.

10*th.*—Discontinue the medicine; goes on well.

14*th.*—Quite free from blotches. Nasal membrane become much more healthy, fast losing its discolouration, and gaining the pinky tint. Give cantharides in four grain doses, for six days.

25*th.*—Nasal membrane free from the red spots; is of a healthy appearance; feeds very well; is exceedingly lively and playful; and, on the 30th, I sent her home quite well. I saw this mare, a fortnight ago, quite well and in beautiful condition.

ON TETANUS.

By Mr. James Turner.

[A Letter addressed by him to Mr. Youatt.]

Dear Sir,

Although wholly unsupported, except by yourself, in the remarks I ventured last evening in the debate on Mr. Henderson's very interesting paper on tetanus, I am induced to resume the subject, from some observations which followed of your's striking me most forcibly as confirmatory of the position I had taken up regarding the nature of the disease.

Perceiving that the meeting, though small, comprised a knot of respectable practitioners, and that we disagreed not only as to the nature of this formidable and too often fatal malady, but that the

opinions advanced were equally at variance as to the most efficient method of treating the disease, these considerations incline me to indulge in a little further speculation upon the *origin* and actual seat of the complaint.

It is but fair that I should confess my theory is not grounded so much on minute *post mortem* examinations, as upon very frequent inspections into the *living* structure at various stages of tetanus, when it has arisen from local injuries: not that I have been called in to attend these difficult cases more than others, but I think I have had better opportunities of observing the peculiar aspect which the structure of the interior of a tetanic wound presents, because it has been invariably my practice to make deep crucial incisions with a scalpel, not only within the wound, but also numerous incisions through the sound skin in the vicinity of the wound, and sometimes surrounding it in this manner. My object has been twofold,—the chance of releasing by lesion some peculiarly embarrassed nervous fibril which may have been the conductor; but the chief and more ostensible one has been the creation of a *new action*, or rather the *return of the vascular excitement* in the part injured. And whenever this counter irritation has been succeeded by a copious counter *suppuration*, I have invariably been gratified by seeing the cases do well; but it would be vain to look for such a result in a protracted case from such treatment.

I have also availed myself of several instances of *re-docking*, where tetanus had been caused by the operation; and have attentively noticed the livid and deadly appearance of the fresh exposed stump of the tail at the moment of the secondary amputation; but, above all, the loss of energy in the arterial trunks has been most apparent, the jets of blood from them wanting that vigour which in the healthy adult horse indicate the prompt application of the actual cautery, and the blood in the venous trunks literally as *black* as ink.

Suddenly suppressed suppuration, particularly in punctured wounds of the foot, I have frequently observed precede tetanic symptoms; the injured structure of this part assumes a most peculiar appearance under such circumstances. Wounded, abraded, or exposed fascia is the tissue most productive of this disease in horses; but I believe that all wounded structures which, from their organization, are slow in suppurating, or from the tenseness of their fibres confine pus below or between them, from their pressure become equally susceptible. In short, an injury of any organized part which, either from the compactness of its texture or the confinement of situation, it is denied the power to *swell*,

to enlarge in proportion to the injury sustained, constitutes a frequent exciting cause of tetanus.

It is my humble opinion, and I declare it fearlessly, that in all mechanical injuries, common and uncommon (although I am a staunch advocate for strict antiphlogistic measures), a moderate tumefaction towards the surface, instead of being repressed and regarded as the enemy, should be hailed as a liberator.

There is a curious fact, which all must have observed, that where tetanus has supervened upon violent lameness from a recent injury, the lameness has sometimes almost disappeared upon the manifestation of the tetanic symptoms.

The predisposition in the individual to become affected with tetanus is a collateral circumstance not to be lost sight of in this discussion. There is a certain description of horse not exclusively of the blood kind, but generally of high pretensions in that respect, with hard prominent muscles, full eye, ears erect, tail well set on, a vivid intelligent countenance, and remarkably energetic both in and out of the stable, which is peculiarly susceptible of tetanus. In fact, the reverse sort, I mean the one of mean conformation, flabby muscles, tail low, ears lopped, with a large fleshy head and an arrant slug in the bargain, *I have yet to see* labouring under this disease. Horses of this inferior grade, however, melt away, and are easily enough destroyed by pneumonia; but I repeat, they are not *good* enough to be the subjects of tetanus.

I would define *tetanus*, when occasioned by a local injury, to be a *disease of the brain and nerves*, accompanied with rigidity of most of the voluntary muscles throughout the system, originating in the part injured by a sudden inauspicious *metastasis* of the inflammation from the organic vascular connecting tissue to the *minute nervous fibrils* themselves, and transmitted by them to the spinal marrow, and from thence to the sensorium.

This theory is also strengthened by certain phenomena which I have occasionally observed to have immediately *preceded* some cases of tetanus symptomatic of apparently *trifling injuries;* for instance, a graze of the shank-bone or skin of a hind leg just below the hock joint about an inch and a half in length, but the joint not involved in the injury, as evidenced by little or no lameness accompanying the accident. The usual antiphlogistic treatment adopted, poultices, quietude, &c. till about the fourth or fifth day, when the wound was found covered with healthy pus, accompanied with what I would designate a *desirable or suitable tumefaction* of the leg below the hock, and *descending* in a favourable manner towards the fetlock; no lameness whatever being

present, and the animal's spirits being gay, it was unwisely thought that the cure would be expedited by discontinuing the poultice and bandage, and applying simple tincture of myrrh to the wound once a-day. In forty-eight hours after this change of treatment, although the horse was quiet in a box on bran diet, without exercise, he had become exceedingly lame even in his walk; and instead of that wholesome or salutary tumefaction of the limb before described, the leg and fetlock joint was as *fine* as that of a race-horse after a gallop; the surface of the wound, of course, contracted and harsh, and not even a drop of pus under its incrustation; *bowels costive*, but the appetite good, and the pulse unaffected. The next morning he had confirmed tetanus, the membrana nictitans extending half over the globe of the eye, and a general rigidity of the voluntary muscles, accompanied with torpor of the bowels, although the day before he had taken an ounce of aloes: lameness less apparent, *no secretion of pus from the wound*, the injured limb *vexatiously small*, and not tender to the touch.

As regards *treatment*, I would again wish to ask, whether, in this excited state of the nervous system, the veterinary profession has any known resources or curative means so well calculated to allay this morbid irritability in the early stage of tetanus as *profuse bloodlettings*. I am of opinion that the avoidance of copious bloodletting till we are admonished so to do by an augmentation of the action of the heart, as the majority of the meeting appeared to recommend, and, using the language urged, "husbanding the vital fluid," would be to extinguish our best chance of cure; for by waiting the accession of such premonitory symptoms, the nervous excitement would be found to have extended to the vital organs themselves, particularly the thoracic viscera.

I have a crowd of facts to offer in illustration of these remarks, should they be desired at another opportunity; and I should be glad if I could induce the profession to institute a more minute inquiry as regards a particular crisis or sudden turn of the inflammation arising from local injuries with which we are sometimes taken by surprise, owing to peculiarity of constitution or some unknown causes which it would be well for us to find out.

It appears to me that, in a healthy suppurating wound, there is that reciprocal action between the minute vascular and nervous tissues which favours the *secretion* of pus both in quantity and quality; but that various causes or assemblage of circumstances may conspire to disturb this equilibrium, and cause the vascular capillary structure to drop the excited action, and the nervous tissue to take it up, and thereby acquire an undue ascendancy.

I also believe this *nervous excitement* to be *another* of the seve-

ral *terminations* of inflammation which frequently occur in peculiar constitutions independent of tetanus.

I am, dear Sir, your's faithfully,

JAMES TURNER.

3 11, Regent Street,
Jan. 5, 1832.

ON THE PRESENT DEGRADED STATE OF THE VETERINARY PROFESSION.

To the Editors of "The Veterinarian."

Gentlemen,

YOUR observations, in a former number of THE VETERINARIAN, on the subject of Newmarket being without a veterinary surgeon, are calculated to call to recollection some of the melancholy truths which the members of our profession, that is, the few who can with any propriety be called members of a profession, are but too often reminded of,—the degraded, the neglected state of the veterinary art in this country, although the first country in Europe for her breed of all domestic animals, but preeminently celebrated in the breed of horses.

For one, however, I differ materially from you, when you describe the state of the profession as discreditable to *us;* on the contrary, I assert that, were it not for the few educated men who have embarked their talents and industry in it, that its state would be indeed discreditable. It is but to the exertions of individuals that the veterinary art holds still a rank among professions at all; and none amongst us have greater claims than yourselves, or, indeed, so great, for the strenuous and disinterested efforts you have made to accomplish all that is desirable for the welfare and respectability of the veterinary profession.

Yet, I cannot take blame to myself, because Mr. Tinman, perhaps my neighbour, too, who, having jumped from the counter to the college, next commences the practice of veterinary medicine in the country, blending the appropriate trades of bell-hanging, saucepan-making, and "smith's work in general," with it; and who, red-hot with the diploma, and a lore of information picked up in a few months' attendance upon those worthies at St. Pancras, displays his ignorance by his gibberish; having a few medical slang terms at his tongue's end, instead of a knowledge of the art, and which, to our great prejudice with the thinking and respectable part of the community, he substitutes for his deficiencies, and disgusts every one who has discernment enough to distinguish between impudent pretensions and real merit.

"*Ex uno disce omnes;*" and *we* suffer because Mr. Coleman

has thought proper, and been permitted, to take the twenty guineas of such a man; and because Sir Astley Cooper, Sir Charles Bell, and other medical friends of the Professor's, have subjoined their names, after a social glass of wine in Conduit Street, in testimony of his veterinary acquirements.

In all racing-stables, there are reasons too obvious to require comment to operate against the veterinary surgeon being called in to cases where secresy is the only remedy for getting through a bad speculation. But, in a place like Newmarket, there are about four hundred horses in training, of enormous value. Take, for instance, Priam at £5000, the Colonel at 4000 guineas (the sum he was sold for to the late king), Zinganee at 3000 guineas, Riddlesworth at 3000 guineas (the price he sold for), Zany, Variation, Lucetta, Fleur-de-Lis, the Saddler at 3000 guineas, and a long list of others too numerous to register, that are not under engagements, like colts and fillies in the Derby and Oaks, but yet are liable to all diseases at any moment; and besides these, a number of valuable stallions, mares, and blood stock in the neighbourhood, together with the hunters and hacks of gentlemen and trainers; post-horses, and others employed in agriculture, the same reasoning does not apply to any of these.

By many it is argued, that the prejudices of grooms and jockies are too great to suffer a veterinary surgeon to be called into their stables at all; but I will ask, where would such prejudices be, after thirty-five years' cultivation of the veterinary art in this kingdom, if veterinary surgeons in general were not equally as ignorant as the grooms themselves?

To apply my argument, let us for a moment suppose that one of the present members of the Jockey Club in his younger days was accustomed, perhaps in the vicinity of his paternal estate, to converse with a bell-hanging veterinary surgeon, whose occupation at the mansion was, perhaps, not alone the practice of veterinary medicine, although his diploma, attested by such high-sounding names as Abernethy, Babington, and others, might be distinguished hanging among the pots and pans in his shop; is it not more than probable that the ideas so conceived by the young gentleman would be such, that, when at years of maturity, he would have some difficulty in forgetting the impression such a character was calculated to produce?

It is not then to be so much wondered at, when gentlemen at Newmarket prefer the knowledge of their grooms to that of a tinker; particularly where the groom, as in most racing-stables is the case, has been accustomed from his boyhood to the care of horses: and while we ascribe some prejudices to the ignorance of grooms which would weigh but little in the scale against us with

their employers, had we the proper balance to offer in our own favour, we should never omit the opportunity of pointing out to men of influence and intelligence the glaring incongruities that are suffered to exist in our Royal Veterinary College, as it is called, to the actual loss and discredit of both the public and the profession.

When such men as rat-catchers, mutton-pie-men, razor-grinders and tinkers, are admitted at the Veterinary College, something more must be done to secure the continuance of these customers than merely to enter them; and therefore a committee of examiners is continued, who can and do know little about the diseases of the horse, and the manner of treating them, and absolutely nothing at all about sheep and cattle, and who are no more capable of judging of the actual qualification of the pupil than Mr. Jenkins the cupper, or Mr. Tomkins the dentist, or Mr. St. John Long of Harley Street. They may perhaps know that Mr. Coleman teaches such a theory, or Mr. Sewell administers such a drug out of his "Pocket Pharmacopeia;" but they are no more able to judge of the truth of that theory, or the effect of that drug, than the man in the moon. All they can do is, to ascertain whether the candidate for a diploma *professes* to believe in the theory, or promises to administer the drug; and agreeably to this, they pass or reject him. And there are high-minded honourable men who act a part in this farce, and submit to this disgrace.

The public cannot too often be reminded of the circumstance, that the only men proscribed by the governors from attending the College meetings, where their suggestions might be of service, are veterinary surgeons. The following observation of Mr. William Percivall, in the introduction to his elementary Lectures, is in some measure applicable, viz. "the man who barters his reputation for dirty pounds, shillings, and pence, be he who he may, whether he preside over or be a member of it, forfeits the good will and confidence of a profession; he living dishonoured, and, dead, leaves a name a blot in its history." But, then, is it not inherent that we should all take care of our own interest, in preference to that of others? and the fault still lies at the door those imbeciles who attempt to preside over the veterinary institution, and who, in their sapience, have thought proper to exclude the only class of persons who could enlighten them upon the inconsistencies that Messrs. Coleman and Sewell are consequently now suffered to practise within the walls of the Royal Veterinary College quietly, and without the annoyance of being reminded of them by any one.

The Percivalls, the Fields, the Turners, and Messrs. Goodwin,

Henderson, Watts, and some few others I could name, the few respectable practitioners of the veterinary art, it is true, have all gone through the farce of becoming members of the Veterinary College; but I much doubt if they all and every one of them had not more information before they went to the College, acquired from their respected parents, than ever they gained there.

The superiority of Mr. Youatt's knowledge, on every subject connected with the veterinary art, needs a better pen than mine to pourtray. It alone gained him the highest honour he can enjoy, viz. Lecturer to the London University. Did he acquire it at the Veterinary College? No; on the contrary, he met with nothing but opposition and insult while there: and when afterwards he applied to be admitted a member, foolish and annoying difficulties were raised, when, much to his credit, he refused to become one on the proffered terms; and though not a member of the College, he is acknowledged by all who know him to be the most diligent, the most enlightened veterinarian, and the brightest ornament the profession can boast of.

In order to shew that, were the generality of veterinary surgeons different to what they really are, they would be differently considered, I may relate a case that occurred during the last summer. One of the members of the Jockey Club, Mr. Scott Stonehewer, has a most valuable race-horse, Zany; and during the Goodwood Meeting it was unfortunate enough (for otherwise this horse would have started for the St. Ledger) to contract, during its gallops, an attack of inflammation of the navicular joint. The groom imagined that it was a bruise, or the prick of a nail; or, indeed, any thing but what it really was. This accident made a great consternation in the betting world, for Zany was, at the time, a favourite for the great Yorkshire race, the St. Ledger; and its worthy owner, who is a true lover of horses, succeeded in obtaining the advice of Mr. Watts, the veterinary surgeon to the Scotch Greys, whose regiment was at the time at Brighton. The symptoms were too plain to deceive him, and the active treatment he pursued saved one of the most valuable racers from permanent lameness; much to the joy and satisfaction of Mr. Stonehewer, who not only liberally remunerated Mr. Watts, but has had the candour and kindness to acknowledge, to many noblemen and members of the Jockey Club, the services rendered to his horse by him.

Mr. Watts, senior, is the most eminent veterinary surgeon in Ireland, and his son has benefitted by the father's experience; and had we had earlier a few more such in the profession, I will ask where would have been the prejudices and dominion of the groom?

At the Veterinary College not a syllable is ever mentioned about the training stable, nor a sentence ever uttered about the treatment of hunters or hacknies, either in health or disease, or stud practice; although, I take it, they do possess peculiarities that might be descanted on with advantage; but the student leaves St. Pancras just as ignorant, as to pedigree or performance of horses or the pulse of the foal, as the professors themselves.

It is the want of such horse knowledge that makes the veterinary surgeon appear more ignorant than perhaps he really is, and we all know there is no need for that. I mean to say, that every class of horses has its peculiarities, the cavalry horse, the coach horse, as well as the cart horse. And, although so often required as is the knowledge of jurisprudence, who ever heard it named in the College lectures? let alone the recklessness displayed on the diseases of cattle. Yet Mr. Coleman's annual advertisement would make one believe that these are fully understood and taught.

In a great commercial and agricultural country like this, where the interests of the veterinary profession may be truly said to be allied to its welfare, it is extraordinary that such a monopoly of abuses should so long have been suffered to retard the progress of an art so important; and, I trust, the great measure of national reform will lead us to a speedy revolution at St. Pancras.

W. J. G.

CASE OF PECULIAR SYMPTOMS FOLLOWING THE BITE OF A DOG SUPPOSED TO BE RABID.

By John Conolly, *M.D., late Professor of Medicine in the University of London.*

In the month of August, 1825, a man, about thirty years of age, living as a farm servant with Mr. Page, of Billesley Hall, in Warwickshire, was bitten by a dog belonging to his master. The dog had been bitten by another dog (of which the owner, the history, and the end, were equally unknown), and had subsequently become so mischievous, as to make it necessary to pen him up. The man had been used to the dog, and could not be persuaded to keep away from it. Whilst obstinately persisting to rub goose-grease on the throat of the animal, he received a bite on the back of the first phalanx of the middle finger of the left hand.

A few days after this accident, the dog died, after being in a state of fury and distress, snapping at all who approached him, and continually walking about the place where he was confined,

hanging his tail, holding his mouth open, the tongue parched, the eye dim and sunk, and breathing with difficulty. It should be mentioned that, among the first symptoms observed in the dog, was a continued barking during the night, whilst sitting in one place, and without apparent object. The dog soon became very ill-tempered and sulky, snapping at any object held before him; the snap being succeeded by a short howl which was peculiar in its character, and what those in the neighbourhood, who were most accustomed to dogs, considered to be constantly heard in cases of rabies*.

The dog was examined after death, but no one accustomed to dissection was present. The only appearance much remarked, was described as a large quantity of blood in the stomach. The windpipe was reported to be in a natural state†.

The bite was received on Thursday, the 18th; the bitten part was cut out on Sunday, the 21st, by Mr. Webb, of Alcester. The man complained a little of illness, but not much until Sunday, the 28th. In the mean time, and before the excision of the part, the finger which had been bitten was stung by a wasp. On the morning of the 28th, he felt an unusual sensation whilst cleaning knives, the shining of which produced a disagreeable feeling, and soon after he began to complain of his throat, and he could not swallow his breakfast: he had no aversion to swallowing, except on account of the pain the attempt to do so caused him. In the evening of that day, he was observed to be delirious: attempts to swallow, or to expectorate, brought on convulsive agitation; and he threw himself about so violently, that two or three people, uniting their strength, had some difficulty in holding him. Mr. Webb was now sent for, and found the patient in a state in which the attempt to swallow, or any attempt of another person to touch his throat, or to press his stomach or abdomen, produced something approaching to a convulsion.

* In a very interesting demonstration of the effects of the poison of hydrophobia on the structure of the lower animals, at which, through the kindness of Mr. Youatt, I was fortunate enough to be present, it was, I remember, stated by that gentleman, that the howl of a dog affected with rabies rises a third or a fifth at its close, and is considered pathognomonic of the malady.

† In Mr. Youatt's description of the *post-mortem* appearances in the dog, it is stated that "the œsophagus is rarely affected; the stomach invariably. There is much vascularity and redness; in some cases confined to the rugæ, and not much exceeding the blush upon the healthy stomach during digestion, but more frequently descending between the rugæ, and occupying a considerable portion of the mucous coat." It is further stated that there is never any hæmorrhage in the stomach, although a fluid, resembling the deepest chocolate mixed with olive, or dark, like coffee, is often found.—*Youatt on Canine Madness, London*, 1830.

On the morning of Monday, the 29th, the patient's agitation was nearly as great as on the preceding night, and Mr. Webb bled him to about forty ounces: the blood was dark-coloured, did not flow freely, did not become buffed or cupped, or present any peculiar appearance. After the bleeding he slept a little occasionally, and his agitation became less. His bowels had been previously confined, and there had been retention of urine for twenty-four hours, but these symptoms were removed by the administration of an enema.

Mr. Rice, of Stratford, having obligingly communicated to me some of the particulars of this case, which began to be talked about as a case of hydrophobia, I accompanied him and Mr. Royston, now of Redditch, to Billesley Hall, on the evening of the 29th, and saw the patient at 7, P.M. We had not, on that occasion, the advantage of meeting Mr. Webb, who, however, had left a note, requesting me to adopt whatever additional means I might consider to be necessary.

The appearance of the patient, when we first saw him, was very striking. He was lying on a bed, and his legs were stretched out to their full length; his countenance was singularly anxious, and, as it were, contracted: his right arm was lying by his side, but his left was continually waved up and down over the lower part of the abdomen: it was quickly and uninterruptedly moved, and alternately directed outwards, as if for protection, and brought near the surface of the body without touching it. He was uttering low short moans, which kept time with the above described motion of his hand; but the moans were at intervals interrupted by a gasping or short sob. His respiration was hurried, and apparently performed wholly by the thorax: very frequently it became for a few minutes extremely rapid, and so precisely similar to the panting of a dog in hot weather, that no other words could properly be employed to convey an idea of it. Now and then both the panting and the breathing seemed to cease; his respiration becoming inaudible for a minute or more, during which time he appeared unconscious of what was passing around him.

The pulse was 98, and free; the skin of natural warmth all over the body, at least as regarded the head and extremities; for, although he complained, by signs, of his throat, stomach, and abdomen, he would not permit us to place our hands on those parts, shrinking from our attempts to do so, as a man would shrink from the approach of burning coals, or a sword. He was but now and then able to speak a syllable, and only in a whisper; but he made frequent signs for something to moisten his mouth; and then, apparently with excessive pain and difficulty, and with

much gulping and spasmodic action about the throat, swallowed a teaspoonful of bread sopped in milk and water. He not unfrequently appeared anxious to be instantly raised up, and then, with long and painful efforts, during which his whole body was distressingly agitated, he expectorated a small quantity of tenacious mucus.

During all this time his mind was, for the most part, free and undisturbed. He often intimated, by signs, that his throat and bowels were painful, and also his head; and seemed to think he should certainly die. He made no allusion to his hand, the wound of which had not yet healed; and we were informed that he did not imagine, and indeed would not believe, that the bite of the dog had any thing to do with his illness.

A light was brought suddenly into the room, without affecting him: the dashing of successive pails of water into a tub, in preparing a warm bath, seemed, on one or two occasions, to give him violent disturbance. Mr. Rice, who has a distinct recollection of this, which escaped my own observation, describes him as having manifestly shrunk with apprehension whilst this was doing; but at length he sat down in the bath, with a decrease of agitation. He remained twenty minutes in the warm water; during which time his sufferings were diminished, and the respiration was, generally speaking, more tranquil, although now and then the panting came on. On being taken out of the bath, he was laid in a warm blanket, and appeared to be greatly relieved, although still unable to speak or to swallow. He remained tranquil for some time afterwards. We took this opportunity of carefully examining the under part of the tongue, but found no appearance of the vesicles described by foreign writers: the tongue was very gently raised by the small end of a teaspoon, but the examination produced a convulsive action in the throat.

After this, ten leeches were applied to the throat, and twenty-five to the abdomen and thorax; and poultices of bread and milk, with the addition of laudanum, were applied to the leech-bites in both situations. Mr. Webb had previously ordered a pill, consisting of hydr. submur. gr. iij. opium, gr. i. and antimon. tartariz. gr. ss. to be given every four hours: it was thought advisable to order it to be given every *two* hours during the night.

A blister was applied to the throat; and another, of the size of an ordinary pair of bellows, was applied to the whole front of the thorax, and the abdomen as far down as the umbilicus.

We left our patient with feelings of dejection, thinking it very probable that his disorder might increase in violence, and prove fatal, before we could see him again. We approached the house,

the next morning (the 30th) with anxiety, hardly expecting a favourable report. On this occasion we met Mr. Webb and Mr. Purton, of Alcester. The apparent results of what had been done were very agreeable to us. The leeches we found had produced immediate relief in the throat; and the relief was accompanied by the restoration of the powers of swallowing and speaking. The pain in the stomach and abdomen had also been relieved; and the patient, after being able to take a basin of broth, had slept very soundly.

On going into the patient's bed-room, we found him still in a profound sleep, breathing deeply and slowly: his skin was warm and not very dry, and his pulse was eighty-three. But during his sleep we observed, every three or four minutes, that his body was suddenly, and sometimes violently, shaken. His lower jaw was also frequently seen to be a little agitated. His night-nurse told us that, whilst he slept, he had sometimes almost sprung from one side of the bed to the other. The sound of many voices did not disturb him; and as we were all obliged to leave the house soon, we thought it right to rouse him a little. For a few seconds after being awoke he seemed unable to account for our presence; but he afterwards spoke very collectedly, and quite clearly and naturally. He said he had not dreamt during the night; he expressed himself greatly relieved, and complained only of a little pain in the bowels. His bowels had not been further moved: the abdomen was full and hard, but he no longer shrunk from pressure; and there was no urinary retention. His skin was of natural warmth, and his countenance less anxious: the cheeks were a little flushed; and the tongue was partially detaching a whitish scaly coating. He complained of thirst. No vesicles were observed under the tongue. Directions were given that the enema should be repeated, and the pill continued at intervals of four hours. Five pills had been taken since our visit the previous evening.

August 31.—The improvement continued. He slept better, but the agitation during sleep now and then occurred. The bowels had been moved by the enema. Abdomen still rather full and hard, and a little pain complained of. ℥vi. of castor oil were given. The pills to be continued at intervals of six hours; and three tablespoonfuls every four hours, of an emulsion of ol. amygdalæ, ℥vi.; pulv. acaciæ, ℥vi.; syrupi. papaver. ℥ss.; aquæ distil. Oss, M.

Sept. 1.—Felt himself so well as to wish to get up; but on moving he was too weak to support himself. The castor oil had made him sick, and had acted on the bowels. The abdomen soft and natural. No pain; no convulsive agitations. Voice observed

to be thick. He had only taken one pill since the 31st. Their repetition was directed.

Sept. 3, vespere.—Slight difficulty of swallowing felt to-day. No pain. He was low-spirited and weak. Pulse about sixty, and feeble. Bowels regular. Hardly any appetite for food.

From this time he took little or no medicine. Some coffee was ordered, which greatly refreshed him: he afterwards slept well, and gradually got better in every respect. He was soon afterwards married to a young woman who had most carefully and kindly attended him in his illness, and left this part of the country.

Two years after the occurrence of this case, I wrote to Mr. Webb, to inquire whether or not he knew any thing of the subsequent state of the patient; and a circumstance communicated in Mr. Webb's reply is worthy to be added to the above detail.

"I do not know," says Mr. Webb, "if I informed you, that about six weeks after the man was bitten, and three weeks after the wound was healed, he came to me with a vesicle, situated partly where the wound was excised, similar in size and shape to a large cow-pock vesicle, and filled with a reddish fluid. I recommended him to apply a poultice to it, which caused it to break and disappear. I have certain information that the man is living and in health."

I have purposely detailed all the particulars of this case without comment. I believe I was the only witness of it, who entertained much doubt concerning its being a decided case of hydrophobia; and I confess my doubts concerning its nature remain. The dissection of the dog was too imperfect to make the evidence complete; and the supervention of the symptoms, on the supposed cause, was more rapid than it is commonly supposed to be in cases of rabies. The patient was of an irritable constitution, and had been, at a former period of his life, *subject to fits*. But the symptoms were exceedingly curious, and quite unlike any of the ordinary symptoms of disease.

If it may be admitted that the dog actually died in a rabid state, we can hardly avoid considering the patient as really the subject of hydrophobia; and his recovery, under very simple treatment, even from what must be looked upon as a mild degree of so dreadful a disorder, would be a fact of some value. Two circumstances appear to be constant in rabies, whether existing in the dog or in the human subject,—a violent degree of nervous disturbance, and a disposition to local inflammations. The treatment in the case just described was dictated by a consideration of these circumstances; and without laying undue stress upon this single case, it must be allowed to illustrate the advan-

tage of acting on plain indications of treatment, in preference to relying on any supposed specifics. That a remedy may some day be found, in some of the kingdoms of nature, even for hydrophobia, is by no means improbable; but, until such a remedy has been found, the above indications are, perhaps, the only ones which can be acted upon with safety, or a hope of success, at least after surgical means of prevention have been ineffectually employed.

I should, perhaps, explain, that at the time of the occurrence of this case, medical men were led to believe in the existence of certain vesicles under the tongue, in cases of rabies; and of the advantage of puncturing them, giving the patient, at the same time, large doses of the decoction of broom, and causing it also to be used as a gargle. Although we did not lose our time in giving the decoction of broom, we had not yet learned the non-existence of such vesicles in any case; a fact, I believe, now generally admitted. When their existence was confidently asserted, they were said to appear between the third and ninth day after the bite, and the life of the patient was said to depend on their puncture. The period, therefore, of their alleged appearance was past before this patient's situation attracted any attention.

Mr. Youatt, to whose able papers, republished from THE VETERINARIAN, I have already referred, is of opinion that an enlargement of the sublingual glands, with appearances of inflammation, may have been mistaken for the vesicles in question. I have the more pleasure in quoting from the very interesting writings of Mr. Youatt on this subject, from having had personal opportunities of witnessing the truly philosophic zeal with which he endeavours to investigate it; and the liberality with which, in his anxiety to improve our knowledge of the nature and treatment of a fearful malady, he courts the co-operation, assistance, and suggestions of the medical profession.

Warwick, October 6th, 1831.

From the Midland Medical and Surgical Reporter.

INSULTING EXCLUSION OF STUDENTS FROM THE ANTI-ROOM AT THE VETERINARY DINNER.

Messrs. Editors,

YOU have been the consistent and zealous friends of the veterinary pupil in all greater matters, and I am encouraged to hope

that you will not refuse to plead his cause in those of lesser import, and yet I do wrong when I call them so.

There are no men whom I value more than yourselves. Suppose that, as an expression of my respect and gratitude, I ventured to ask you to my humble board; and that, lest I should presume too much, I gave you to understand that I would not dare to force myself or any of my humble friends upon you in the drawing-room (if I had one), but that the best apartment in the house should be set apart for your reception, and that of a few of the great ones among us; and that, afterwards when the dinner was announced, you should statelily stalk through a double row of my poor insignificant acquaintance, deigning, perhaps, to bestow a nod upon one, and possibly a shake of the hand upon another, and should proceed to occupy the upper part of my table (there, indeed, I should wish to place you), eating, drinking, and making merry among yourselves, but taking no manner of notice of us small fry: supposing, I say, that you were to accept of my invitation on these terms; supposing it was the understood routine, the very terms on which we were to meet; supposing that you could be vain, proud, ridiculous, *unfeeling* enough to do this (I well know you would not), what would be the result? I should hate myself for being so despicable as to submit to such gross and unprovoked insult; I should forget all my former respect for you, and hate you for your arrogance; and my brethren and the world would despise me for such disgraceful submission.

Now, gentlemen, what I ask of you is to permit me, through the medium of your Journal, to point out the bearing, the hateful bearing of this little fiction on me and my profession; and the gratuitous, unexampled insult which is annually heaped upon us by those who I am sure do not mean to insult us, and who, I think, will be a little angry with themselves when they reflect how grossly they have done so.

At the dinners at Guy's and Bartholomew's, where the pupils have as kindly a feeling towards their superiors as I have towards mine, but not more than I have, I know that the great and the small mingle together in the anti-room; and the most pleasant part of the day is when the pupil has an opportunity to say some respectful thing to his instructor and benefactor, and the instructor some kind and friendly thing to the pupil. These are the chosen moments of the feast, longest recollected, and the recollection fondly cherished.

When the sovereign of the realm condescends to invite some of his subjects to his hospitable board, there is no previous, invidious, and hateful division of those who are afterwards to surround the table. I have been told that, at a late dinner given by

him to some of his household troops, he condescended himself to introduce every officer to his august consort, *and the veterinary surgeon of the regimentwas one of those thus introduced;* and yet, when veterinary pupils, and instructors, and examiners are to dine together, there is this galling, abominable distinction, which royalty itself never wished to make, and could never, I am persuaded, be induced to make.

I know that the Professors, I know that Sir Astley Cooper read your Journal; let me ask them the *cui bono* of this? Is it the way to excite or to secure real respect? I will not ask them whether they would dare try the same thing with any other students except veterinary ones; or whether they would be able to face the storm which they would raise; but I will press upon them the *cui bono?* I will press upon them the insult, unintended, unthought of, uncalled for, flagrant and indelible. It was not so at the early dinners. Why was it ever introduced? Who will give me one valid reason for it? Who will point out in what way we have deserved to be selected for insult *never before offered to any class of students?* Are they our kind, esteemed benefactors who are thus degrading us?

Sir Astley, to your warm heart I appeal. Why should every rule of civilized society be broken to disgrace and to debase us? Where is the distance even between *you* and us that throws us back thus far, and exposes us to this contumely? You did not intend it; you had not thought of it. But are not you doing it? Away with this odious distinction of guests. You accept of our invitation; we are worthy at least of that—And is that all? is there yet that gulph between us, that we must not even tell you how much we respect you? Pshaw! pshaw!! How, in the name of all we hold dear, came this about? Some wizard, watchful to degrade instead of raising us, has wrought his mischievous spell.

Professor Coleman, I appeal to you, respectfully appeal; listen to me;—for your own sake do it—for the sake of your insulted pupils do it. One word from you will effect the desired change. Pause—consult the honest, glowing feelings of your own bosom, when you look around among your pupils, and see so many worthy of you—worthy of general respect—worthy of any thing but insult; consult, I say, your own heart before you refuse to utter that one word which will set all right. The eyes of your pupils and of the profession are upon you; their united voice implores you;—they will not now use—they will never, they trust, have occasion to use—other, firmer language. They entreat you to dot hem justice,—to protect them from the scorn of other medical pupils, and from the mortifying consciousness of their own humiliation. *They entreat you to do them justice.*

STUDENS.

MR. YOUATT'S LECTURES.

LECTURE VI.

[☞ The former part of this Lecture, on Nasal Polypi, was inserted in THE VETERINARIAN for November 1831, under the assumed signature T.]

ON CORYZA AND NASAL GLEET IN THE HORSE.

BY coryza I mean inflammation of, and defluxion from, the nasal cavity, or the cells with which it is connected. Catarrh is the same affection extending to the fauces. It may be so far connected with catarrh as being often the precursor of it; but it is a distinct affection, and of no unfrequent occurrence. From exposure to night air or to cold, we feel a partial obstruction in the nose, a slight heaviness, a pain in the forehead in the region of the frontal sinuses, and an increased defluxion from the nose. This is sometimes the forerunner of a more extensive and worse disease, but often it goes off with little care, and is scarcely worthy of attention.

In the Horse.—So in a horse we can easily trace the slight and circumscribed affection. From exposure to cold, or from some unknown cause, he appears to be a little heavy; there is a slightly increased labour in respiration, a little redness of the nostril, and defluxion from it, and weeping from the eye, but no heat of the mouth, and no acceleration of the pulse. We give him a warm mash, and all goes off.

But we have seen that the lining membrane of the nose is an exceedingly sensitive one. It is, besides, too much exposed to unnatural stimulus, and becomes debilitated and disposed to take on inflammation. The extreme changes of temperature under the influence of which he suffers, would scarcely be thought credible. Twenty hours out of four-and-twenty he stands in a heated stable, into which not a breath of pure and cool air is admitted, and then he is suddenly led into an atmosphere thirty or forty degrees lower. Nothing can be so injurious as these sudden changes. The animal frame may be gradually inured to any thing. We may enjoy equal health when the thermometer is at ninety in the shade, and when it is almost as low as zero; but these sudden and extreme changes nature cannot bear, and, applied to an enfeebled part, or an enfeebled constitution, they are downright murder.

I am not now speaking of the general effect of our absurd and

cruel treatment—the constitutional derangement produced by the sudden revulsion of blood from the integument to the vital parts, or that which must be the consequence of the full sedative of extreme cold, brought suddenly to bear on an animal highly excited, and every vessel and every pore dilated; nor, on the other hand, when the circulation loiters in the veins, and the part is exhausted by cold, the dangerous consequence of the blood again violently rushing on, and distending the constricted and paralyzed vessels.

I have now to do only with the Schneiderian membrane,—that membrane, indeed, which is first and most exposed to these changes and injuries, and which has been previously debilitated by other causes. In my last Lecture, I spoke of the mucous membrane of the nose as the guard of the lungs; as arresting every deleterious substance, whether gaseous or more material; and how much has it to do here! To what a villanous compound of smells is the stabled horse exposed during the far greater part of his time! Our eyes weep, and temporary coryza is established, if we remain in the stable but a few minutes. *He* lives there. All these pungent particles fall on the membrane of his nose—they are detained there—they make their full and worst impression there: then we cease to wonder that the vitality of the membrane is so much impaired; that inflammation is so easily excited, and so difficult to be subdued, and so much disposed to spread to neighbouring parts.

The frequent consequence of coryza in the horse is, as may be supposed from what I have said, the establishment of

NASAL GLEET.

The previous inflammation may have been slight, or it shall have passed altogether away; but there remains an occasional and sometimes a profuse discharge. If it is of the natural colour and consistence, and flows with some regularity, it probably proceeds from the nostril. If it flows more irregularly, and is discharged by fits and starts, and in considerable quantities, it proceeds from the cells of the face or head. If it wears the tinge of the food, the pharynx is affected, and the tensor muscle of the soft palate is relaxed. If it is purulent, it does not follow that there is ulceration, for this is the character of a mucous membrane under inflammation; but if the breath is fœtid, and blood mingles with the pus, ulceration has been established. This gleet will continue sometimes for weeks and months, and bid defiance to all our applications: if it does so, it too frequently degenerates in, or was from the beginning, another disease, the

pest of the equine race. This other disease, glanders, is principally characterized by a defluxion from the nose, and inflammation and ulceration of the Schneiderian membrane. How shall we distinguish the one from the other? Not always with certainty; but there are landmarks which will not often mislead us. We shall understand them better by-and-by, when we have treated of glanders; but we must say something about them even now, for the life of a valuable animal may be at stake, or perhaps the safety of a whole stud.

The discharge of nasal gleet is of a mucous character, and not very adherent; the discharge of glanders is more pellucid and sticky; and yet sometimes, when the discharge of nasal gleet is small in quantity, it dries about the edge of the nostril, and gives an appearance of stickiness, difficult, very difficult to be distinguished from that of glanders, and requiring all our "tact, talent, and discrimination."

The discharge of nasal gleet is always more or less irregular; that of glanders is constant. The first is of an uncertain hue, white, yellow, brown; the other is usually pellucid. The first is free from smell; the second may be so, but it often stinks abominably.

The submaxillary glands are not always affected in nasal gleet, but generally they are a little soft, more enlarged, somewhat tender, and situated towards the centre of the channel. In glanders the glands are harder, not tender, nearer the jaw, and often adherent to it.

The membrane of the nose in nasal gleet is red, although indeed with variable intensity; but that of the glandered horse is pale or livid. If the membrane is abraded in nasal catarrh, the abrasions run in lines, and they are superficial; the edges are irregular and ragged. If the chancres of glanders run in lines, yet the ulcers are detached, rounded, deep, and the edges elevated. Attention to these distinctions will preserve you from material error. I will suppose you to be consulted respecting a case of nasal catarrh. Be very guarded in your prognosis, and especially with reference to glanders. There may be little or no doubt in your mind with regard to the nature of the disease; yet be cautious. Remember that every disease that gradually impairs the strength of the constitution, may run on to glanders, and much more a disease of that membrane which is the very seat of glanders. You will guard yourself by a hint of this, that, should the worst happen, it may not be imputed to you, that, where so much might be at stake, you had mistaken the complaint.

You are entering on the remedial treatment of it. It is one of

the sequelæ of coryza or catarrh, or some worse affection of the chest. It may be merely a symptom of one of them. Does any febrile action accompany the discharge? The pulse, the mouth, the loss of appetite, do they indicate the slightest degree of fever? If so, attack it; give digitalis, emetic tartar, and nitre. If you remove the cause, the effect will cease.

If there is no fever, but it is plainly a local disease, chronic inflammation of the membrane of the nose, you must treat it as such. Is there any medicine which seems to have its principal action on the Schneiderian membrane? I imagine that there is. Sulphate of copper is a general tonic, but with its principal determination to this membrane in restoring the tone of its debilitated excretory vessels, and enabling their orifices to contract. Its celebrity arises from this, and from many cases of nasal gleet being supposed to be cases of glanders. I will not deny that it has cured glanders—so has every stimulant, and so has every sedative, and so has nature, unassisted by us. It should be given in doses of from ten grains to half a drachm. Here our veterinary practitioners are too apt to err. They are too fond of overwhelming doses of almost every medicine. They are not content with a mild but permanent effect from the medicine which they exhibit, but they must do every thing at once, and they thus totally change the character of the medicine, and, instead of renovating, exhaust and destroy.

When I recommend so small a dose, I would urge you to look at the seats of the disease, and its connexion—the nature of the diseases of the mucous membrane—their insidious character—the danger of administering tonics too soon, and often of administering them at all. Our best veterinary writer, Mr. W. Percivall, had seen so much of this, that, in one of his lectures, he declaims against the use of tonics altogether. This is wrong; but experience proves the impropriety of administering tonics too soon in a great variety of diseases, and the folly of giving them in great doses in any. Therefore give small doses; and except you are perfectly assured that all febrile action has ceased, and, even if you are, so liable is it in a mucous membrane to return, that these little doses must be guarded by an admixture of sedative medicine. Do that which appears to be contradictory. Blow hot and cold at the same time. While you stimulate a part, guard the constitution; and while you rouse and support the constitution, guard against the dangerous effect of tonics on some unusually debilitated and irritable part. It is in this double accomplishment of objects, this regard to all connexions, and provision against all contingencies, that the perfection of practice consists. Then to my sulphate of copper I would add, in smaller

doses, my usual fever medicine. I have seen much good effect from it, and I would recommend the practice to you.

A seton in the channel between the branches of the lower jaw has sometimes been useful as a derivative. Little restriction need be laid on diet; and to moderate work there can be no objection. Then, as a last resource, and a very excellent one, there is the *salt marsh.* We do not sufficiently know its virtue in many cases of this kind, and indeed in almost every disease. There are few tonics comparable to it. I know of nothing which so often succeeds in restoring the tone of any overworked and debilitated part, or renovating the constitution generally.

THE VETERINARIAN, FEBRUARY 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

EXTRACT FROM THE REPORT OF THE PROCEEDINGS OF THE ROYAL VETERINARY SCHOOL AT LYONS DURING THE SESSION OF THE YEAR 1831.

Clinical Chair.

Account of the animals received into the hospital of the Royal Veterinary School at Lyons, from Aug. 1, 1830, to Aug. 1, 1831:

Species.	Cured, or discharged nearly cured.	Died, or were killed.	Now in the Hospital.	Total.	Observations.
Horses	290	62	8	360	Of the 62 Horses, 13 died of staggers, 4 of farcy, and 13 died or were killed glandered. Of the 74 Dogs that died, 31 were rabid.
Asses	13	0	0	13	
Mules	14	2	0	16	
Cows	2	0	0	2	
Dogs	229	74	11	314	
Cats	14	5	0	19	
Goats	2	0	0	2	
Sheep	1	0	0	1	
Gazelle	0	0	1	1	
	565	143	20	728	

The number of animals brought to the school for advice, and taken away immediately after the Professor had been consulted, or after they had been operated on, was far higher than the number of patients treated in the infirmary, and may, without exaggeration, be reckoned at two thousand. Nearly two hundred animals in the environs have been visited by the pupils sent from the school at the request of the proprietors.

1. The variable temperature and frequent rains that occurred towards the close of the last year, and the beginning of the present one, caused a great number of inflammations of the mucous membrane of the respiratory passages, both in the horse and in the dog.

In the latter, the disease which attacks young animals consists of a simultaneous inflammation of the mucous membrane of the alimentary and pulmonary tubes, and particularly the last. It resisted all the ordinary means of treatment, and destroyed the greater part of the animals which were affected by it.

In the monodactyles, in nearly fifty of the patients affected with this inflammation of the mucous membrane of the respiratory passages, the disease was seated, from the commencement, in the mucous membrane most affected; but laryngitis was frequently complicated with coryza, rhinitis, or tracheitis, or bronchitis. Under this last form, an accidental symptom is frequently observable, namely, a very loud respiration—a sort of snoring, which becomes more intense when the patient is eating. In all the animals attacked by this disease, the throat was sore: a few had considerable tumefaction of the throat; some expressed a great deal of pain when the trachea was compressed, and all of them coughed more or less, while there was a slight mucous discharge from the nostrils. The mucous membrane of the stomach had very little participation with this morbid affection, and which was proved by the unimpaired state of the appetite.

These affections were always successfully treated by the ordinary means. Embrocations of hot anodyne oils, applied to the throat and the trachea, appeared to give immediate ease. Care was taken to keep these parts covered with sheep-skins with the wool on.

The symptom which lasted longest was the sonorous respiration. Early bleeding from the jugular, poultices of linseed meal moistened with a decoction of poppy-heads applied to the throat, blisters and setons at a distance from the seat of the disease in order to produce a revulsive irritation, were generally of little service during the first ten or twelve days. Recourse was afterwards had to setons on the front of the chest, and, lastly, to blisters on the throat.

In one of these animals, towards the thirteenth day of the disease, a considerable quantity of white purulent matter, rather thick and a little fœtid, ran from the nostril. From this moment the guttural sound became weaker; the next day it could only be heard when the patient was eating his hay. It was hardly perceptible even then two days afterwards, when the horse was taken from our infirmary. Nevertheless, however weak this respiratory noise had become, it remained until the 8th of August, and then only really yielded to the influence of a purgative dose of aloes.

This laryngo-bronchitis appeared in a horse labouring under farcy; the same treatment then completely failed: recourse was afterwards had, seeing the inutility of all other means, to the operation of tracheotomy; in order to keep the larynx completely quiet: the noise immediately ceased almost entirely, and this good effect continued for five or six days; but it returned as bad as ever, when the tube got displaced. Lastly, about a month or six weeks after the commencement of the disease, when the owner wished the tube to be entirely removed, the respiratory noise returned as loud as ever.

This horse, although his appetite was good, got thinner every day, and at length was destroyed, in the hope that we might be able to discover some of the causes of these symptoms. Ulcers resembling those of farcy were found in the mucous membrane of the trachea, near the bronchiæ. Similar ones existed round the place where the tracheal artery had been punctured, but the ulceration had made the greatest progress on the larynx: the glottis was one vast ulcer, which extended to the base of the epiglottis; the mucous membrane was thickened and carcino-

matous. This established the existence of laryngeal phthisis in animals.

Amid the numerous inflammatory diseases of the chest that we have observed in the dog, the following ought to occupy a place in this report. A large sized dog, very robust, very docile to his master, but having a great propensity to fight with all his own species, was brought to our infirmary on the 22d of March. We were told that he had been ill some days: his appetite was nearly gone; and he had become very thin: his respiration was difficult, short, and accelerated; the intercostal spaces large, the breath fetid, a little mucus running from the nose: the eyes were red, the pulse frequent, soft, and small, the temperature of the body low, the skin dry and foul, and the hair dull; the urine rarely evacuated, and the underpart of the breast and the feet rapidly began to be œdematous; in short, he had every symptom of hydro-pleuritis. This dog was kept to guard a very cold damp warehouse at night.

We immediately inserted a seton, and blisters were placed on different parts of the body; mucilaginous drinks were given him daily, in which were half an ounce of digitalis and three grains of nitre. We fed him with barley-water and milk; and the bowels were kept open by injections. The two or three first days, he appeared to feel great pain in the chest, and we diminished the dose of digitalis one half. Notwithstanding this treatment the disease increased, the swelling augmented, as did the difficulty of breathing, and the urine was seldom discharged. It was at length resolved to puncture the chest, and we obtained nearly two pounds of serous fluid, so highly coloured, that it might easily have been mistaken for blood. The puncture was not closed, and covered only by a bandage so contrived that the matter could still run off.

From this day the respiration became easier, the appetite was renewed, the urine flowed more freely, the œdema diminished, and he became lively. On the 26th of April nothing remained but a slight emaciation, and some apparent pain and swelling in the left stifle: the pains and the swelling had nearly disappeared on the 12th of May. On the 13th, the same rheumatic affection

appeared in the right stifle, but with much less pain. The gentleman took his dog away from our hospital, although still lame. The rhuematism gradually disappeared, the appetite remained good, the strength returned, the bark regained its former tone, but the dog did not gain flesh. On the 11th of June he was brought to us again, manifesting some of the symptoms of the disease called dumb-madness; and he died on the fourth day. We had thus an opportunity of examining the state of the thoracic viscera. On that side of the thorax which had been punctured, the pulmonary pleura adhered to the intercostal by a production of ligamentous consistence, white, thin at the edge, having two points of adhesion two inches or two inches and a half wide. At the point at which this ligamentous production was attached to the lungs, a greyish induration was observable through an extension of some inches. The lungs on the other side were of their natural colour, and crepitating; but their intercostal face presented four tuberculous kernel-shaped masses, which were lighter coloured, and of the same consistence as the rest of the pulmonary substance. These masses, when cut open, exhibited a species of cyst, the homogenous walls of which were about two lines thick; they were deep, and each contained a small quantity of white viscid pus, and communicated with the corresponding bronchial tube. These lesions approached more to the character of cysts than of tubercles. The mucous membrane of the digestive tube was covered with a greyish mucus, and betrayed evident traces of acute inflammation. The other intestines were healthy.

3d. Old horses, like old men, are subject to intestinal disease. Many died from acute cholic and tympanitis of the belly. Puncturing the cœcum, which has been tried in such cases with the intention of favouring the escape of the gas that distends the intestinal tube, and causes the pains inseparable from this affection, is rarely successful. In the most favourable cases that practitioners have observed, purulent collections were formed between the muscular folds of the walls of the belly; but their evacuation by a counter opening was very difficult to establish. This pus infuses itself between the muscular folds, extends further and fur-

ther, sometimes even to the groin and the scrotum, and causes ravages which, like peritonitis and enteritis caused or aggravated by the use of the knife in operation, are each sufficient to produce death.

Suspecting that the trochar which is commonly used in these operations is the principal cause of ill success, we have in one case attempted to give vent to the gas which distended the intestine with an instrument much smaller in diameter. With this instrument, in spite of being compelled to operate twice on the same horse, he was cured without the occurrence of any of the accidents that have been alluded to.

We should, then, recommend to veterinarians to make use of a trochar as small as possible in similar cases, by means of which they can, with the greatest ease, give vent to the intestinal gas; and perhaps, like us, may obtain, under favourable circumstances, the same success.

4th. In three horses, two of which were treated in our infirmary, and the third at the post stables, very violent palpitations of the heart were observable. These palpitations were not only perceptible from the shaking of the frame from one end to the other, but still more by a sound that could not be misunderstood.

In two of these horses the palpitations seemed to be entirely of nervous origin, and constituted the whole disease; for with the exception of a difficulty of accomplishing the circulation, all the other functions were perfectly healthy. In the third it was easy to be perceived, that the disease was connected with the digestive process; the mouth was clammy and hot, the tongue covered with a greyish mucus, the appetite diminished, and the muscular strength depressed. The force with which the heart acted lasted but eight days, and then gradually diminished in the first two patients. In the third the beatings of the heart, which had diminished in a very remarkable manner towards the fourth day, shewed themselves afterwards with increased intensity, and forced us to commence the most active treatment anew.

This treatment consisted in general bleedings from the jugular, and proportioned to the strength of the patient, his age, and the

intensity of the palpitations; revulsive irritants applied to the skin, such as setons and blisters; and antispasmodics internally; the administration of two ounces of valerian root each day, and one ounce of purple digitalis mixed up with five or six ounces of meal. This sufficed to remedy the disease. Care was taken not to leave off this medicine too speedily when the beating of the heart ceased; but gradually to diminish the dose. Copious drinks of barley or marsh-mallows were given to the patient, whose bowels were also kept open. For the first few days no solid food was permitted, and after that only small quantities, which were progressively increased.

5. Three horses, and a mare three months gone with foal, and aged from four, to twenty years, died in our infirmary of tetanus; two in August, one in September 1830, the third in April 1831. The first at the end of two days, the second five, the third six, and the last eleven days.

If we have not been so fortunate as to cure them, we have at least been able to study the divers parts of their organization, and seek out the lesions which this terrible disease leaves behind it.

In these four subjects the sinuses of the dura mater, the superficial vessels of the brain, and those of the plexus choroides, were more or less injected; a quantity of serum, more abundant than in the healthy state, was found in the large ventricles of the brain, and also on the cerebral surface. The consistence of the spinal marrow appeared more firm in two of these subjects, but it became spotted with red when an incision was made into it. In others the consistence did not differ from the healthy state. The arachnoid membrane of the brain in the one, and that of the lumbar region of the spinal cord in the other, had a red tinge, but which a maceration of about twelve hours in cold water quite got rid of. In one of these carcasses the spinal marrow had a sort of leaden tint, and was rather soft; and before death an infiltration of the cellular tissue, of the thighs and quarters, with an appearance of gangrene, was manifested. The arachnoid membrane of the spinal cord in two subjects contained more serosity than usual; in one of them only its tint was doubtful.

Lastly, the nerves of the spinal cord in neither of these car-

casses presented any trace of alteration at their roots. The animals were opened within ten hours after death.

As to the intestines of the other two splanchnic cavities, the lesions they offered were variable: the mucous coat of the gastro-intestinal portion was of a bright red in two of the subjects, and appeared quite healthy in the other two. In all four of them the fæcal matter contained in the large intestines was dry, hard, and black. The kidneys were soft, and larger than in their natural state; the lungs were covered with tubercles about the size of a filberd, and most of them soft in the third; the peritoneum was intensely red on the inferior parts of the abdomen, and the heart pale and soft, in the fourth.

6. Observations made some years ago have caused us to suspect the possibility of a rupture of some of the fleshy portion of the diaphragm after death, resulting from great distention of the abdominal cavity by intestinal gas. Two cases collected in the course of last year appear to put the matter beyond doubt.

A coach horse while being harnessed ran his chest against the pole of a carriage which was standing in the yard. Two ribs were fractured, the intercostal arteries opened, an effusion of blood followed into the corresponding pleuritic sac, and death ensued in less than twelve hours. This horse did not manifest, either soon after the accident or at any time before his death, any of the symptoms which usually follow accidental rupture of the diaphragm. He lived twelve or fifteen hours; and his carcass was opened after about the same space of time. The belly was very much distended; the diaphragm had been ruptured on the superior part of the right side, not far from the tendons; the laceration was very irregular, and about four inches in length; the diaphragmatic curvature of the colon hermetically closed it; the fibres of the muscle were corrugated, and formed into irregular masses; the colour round the lacerated part was like that of the rest of the muscle, namely of a livid deathy hue, and the edges of them were not tumefied; not one streak of blood stained it, nor was a drop of blood effused in the abdomen.

A horse-gelder, who inherited his art from his grandfather and from his father, and who had established a reputation for adroit-

ness in performing this operation, at Mezieux, near Lyons (the department of L'Isere), had a young horse which died suddenly after the removal of the first testicle. With the design of sheltering himself from any judicial proceeding which the proprietor of the horse might institute against him, this man sent for some of the pupils of our school, who immediately proceeded to the place and opened the carcass.

The belly was excessively distended, although only twelve hours had elapsed since death; and they found the stomach ruptured towards its smaller curvature, and the diaphragm torn on the right side at its fleshy part. The latter laceration had not given place to any bleeding; the edges were not at all tumefied, the torn fibres were irregular, parted into unequal masses, and their colour was the same as that of the surrounding parts.

These last cases of rupture of the diaphragm, perfectly similar in anatomical description to those which follow after death, and in consequence of distention of the intestines, appear to us to require strict attention from all veterinarians who may be called to give evidence on any trials that have reference to the death of a horse; and ought to render them very circumspect in the judgment they give as to the cause of death. Although we may be persuaded that they are the result of excessive distention of the intestinal tube, by the expansion of the gas which is contained in it, yet our conviction cannot be definitely established without more examinations of facts of the same nature; and our judgment should be founded on the practice of experienced veterinary surgeons and observers, who will enter into these facts without prejudice, and regard only the interests of science.

7. Eighteen horses have been treated for the affection vulgarly called staggers: of these, sixteen were geldings, and two mares. Six of them were from ten to fifteen years old, and twelve from four to ten years old. Five only of these animals were cured. The duration of the disease in those that died was from twelve hours to four days. Those who were cured, and did not suffer any relapse, remained in the infirmary from six to twelve days.

The periods when this affection made its appearance were

varied, and did not seem to be influenced by the season of the year, or any state of temperature, as may be seen by the following table:—

Years.	Months.	Sex.	Age.	Cured.	Died.	Duration.	Work.	Total.
1830	20 Aug.	Male	0	0	1	10 days	Draught	1
	23 —	——	9 yrs.	1	0	7 —	Saddle	1
	28 —	——	9	0	1	18 hours	Draught	1
	12 Sept.	Female	12 to 15	0	1	50 —	——	1
	8 Oct.	Male	13	0	1	48 —	——	1
	18 —	——	15	0	1	24 to 30	Draught	1
	30 —	——	15	0	1	24	——	1
	1 Nov.	——	15	1	0	8 days	——	1
	12 —	——	7	0	1	36 hours	——	1
1831	14 Jan.	——	11	1	0	6 days	——	1
	2 April	——	4	1	0	6 —	——	1
	28 —	——	13	0	1	24 hours	——	1
	15 May	——	16	0	1	15 —	towing	1
	3 June	——	16	0	1	4 days	——	1
	11 —	——	9	0	1	3 —	Draught	1
	17 —	Female	6	0	1	3 —	——	1
	27 —	——	0	1	0	12 —	Draught	1
	21 July	Male	10	0	1	3 —	Cabriolet	1
				5	13			18

Nevertheless, although the difference is not remarkable in this report, yet it is certain that animals are most frequently attacked with this disease in the spring and autumn, and in the latter of these seasons and the month of June especially.

If, notwithstanding these facts, we still wish to gain some account of the atmospheric influence, or the circumstances of management which may be the cause of staggers, we find that during the autumn the air is usually moist and cold, and in spring moist and warm. But with regard to the latter season, we have to notice two other influences which may unite with the

preceding in producing the development of this disease, and serve as an occasional cause of it. These are, the hard work which is exacted from the horse in the spring, and the use of new fodder, with which they are abundantly furnished. One of these exciting causes acting on the locomotive muscles, the other on the digestive organs, and part of the evil which occurs to the cerebral system soon afterwards is doubtless attributable to these two exciting causes.

The examinations of the carcasses of the animals that died of this disease have furnished us with the following remarks:—In nine, that is in one half of them, the stomach was choked up with undigested food, amid which oats and bran appeared to predominate. In the other half the mucous membrane of the stomach was very red in the right sac. This redness was of a dull leaden colour in most of them, and the mucus secreted was very abundant. In one subject only we observed several erosions spreading on the portion of the mucous membrane covered by the thick epithelium derived from the œsophagus; violet-coloured patches were perceptible in another.

Nearly all the carcasses of these animals exhibited traces of acute inflammation, and more frequently of chronic inflammation of the mucous membrane of the intestines. Watery effusions occurred in the cavity of the peritoneal bag in two instances, and once only in the cavity of the abdomen.

In all these subjects the sinuses and superficial vessels of the brain were very much gorged with blood. In three-fourths of them the effusion took place in the larger ventricles; in half of them there was concrete albuminous infiltration in the plexus choroides. In two animals only the cerebral substance appeared to have become softened in parts corresponding to the tubercula quadrigemina.

With regard to the treatment which has been pursued, it was thought right to vary it according to the condition of the patient, the circumstances of the disease, and the state of the atmosphere. In old horses worn out with work, and in whom muscular power was nearly exhausted, and nervous irritability excessively developed, it was deemed prudent to confine ourselves to

general bleedings; and these chiefly from the coccygean arteries, and the saphena or thoracic veins.

Blisters, also, were used at a distance from the head. When any engorgement of the stomach was suspected, recourse was had to stimulating embrocations, and to castor oil, administered as a purgative.

In cold weather, when the skin was of an icy coldness, and the vital power rallied round the centre, we had little recourse to bleeding. Dry rubbings, stimulating fumigations, blisters, and warm clothing, were used to recall the natural warmth to the skin; also purgatives, combined with antispasmodics, were given.

Lastly, when the weather was warm, and the patient was strong and in good condition, and cerebral symptoms had succeeded to stomachic or abdominal irritation, we had recourse to more copious bleedings. We did not then hesitate to apply several setons; first on the loins, then on the breast, and on the sides. Cold water was plentifully applied to the head of the patient by means of a sponge or tow; emollient drinks and injections of the same nature were used; but we must confess, that notwithstanding all these modifications of treatment which the cases seemed to require, we were not able to save a third part of our patients.

Extracts.

Alleged Discovery of an Extraordinary Styptic.

Our readers have probably heard of the supposed wondrous power of an unknown styptic, discovered by Messrs. Talrich and Halma-Grande. Full and fair trial of it seemed to be made at the Academy of Sciences in Paris. The carotid arteries of fifteen sheep were opened—four of them were cut lengthwise, and two across—from each of them an oval piece of the vessel was taken out; and yet in five minutes after the application of the styptic, the effusion of blood was staid; and in a few days the wound was completely healed. The carotid artery of a horse was opened, and the styptic had the same magical effect.

Mr. Halma-Grande has lately arrived in our country; and a very interesting trial was publicly made of the power of this styptic at the London Hospital.

We extract the account of it from the *Lancet* of January 7:—

Experiment 1.—A full-grown sheep was secured on the table, and the carotid artery adroitly exposed and separated from its surrounding structures to the extent of an inch and a half; a probe was then passed under it, and a longitudinal incision made into the artery, about half an inch in length: the blood gushed from the opening with rapidity during a few seconds, and then a substance very much resembling fine tow, compressed, about the size of an ordinary walnut, soaked in a liquid of a light brown colour, was applied on the opening, firmly, and kept there for ten minutes by the finger; another piece was then applied over the former, the wound was closed, and the sheep carried into an outhouse: the hæmorrhage had entirely ceased. In about ten minutes, however, it returned; not, I believe, from any failure of the experiment, but from indiscreet manipulation. The same applications were again made, the wound again closed, and in five minntes the animal was walking about. During the operation, Monsieur H. stated, that he experienced greater difficulty in operating on the English sheep than on the French, for the following reason:—The former were a finer breed, and their cellular membrane so delicate, and so easily lacerated, that when pressure was made on the artery, it gave way—as a natural consequence it must recede from the substance containing the styptic; and hence the difficulty. He stated, also, that "the styptic acted by separating the serum of the blood from the crassamentum, the former exuding, the latter forming a dense coagulum, and thus preventing the egress of the blood." Some of the spectators tasted the liquid, and according to their ideas, it had not, as far as taste goes, the least resemblance to the class of substances so termed.

Experiment 2.—The carotid artery of another sheep was laid bare in the same manner; but in lieu of the longitudinal incision, a circular piece of the artery was taken out, about the size of a pea; the loss of blood here was much greater than in the former case; the styptic was applied, and arrested the hæmorrhage, quite, for six minutes; but this animal being, I suppose, of a more irritable disposition, began to struggle, and at each struggle the hæmorrhage returned; at last it became so violent, that it was impossible to keep the application in close proximity to the bleeding orifice; hence blood was effused into the cellular substance of the throat (independent of its quick flow externally), the trachea became pressed upon, and the animal died twelve minutes

after the commencement of the operation, apparently from suffocation, as the blood was observed suddenly to change from fine arterial to black.

After the fatal result of this experiment, M. Halma-Grande addressed the spectators as follows:—" Gentlemen, were I not fully convinced of the great utility of this styptic, I should not have appeared before you as I do this day; there can be no national feeling relative to this experiment; it is one for the common benefit of mankind, and surgeons are all compatriots: although in this case I have been unsuccessful, yet I implore you to suspend your judgment awhile, and not think lightly of the subject, particularly when I tell you many eminent men in Paris, and one no ordinary man, have spoken most highly of this styptic; the one I allude to, Gentlemen, is he whose cliniques are attended by numerous English surgeons,—I mean Dupuytren. In his lectures he states, it will be a most 'valuable remedy in the hands of the surgeon.' Once more I implore you, Gentlemen, to suspend your judgment." He then retired."

The day after the operation, Mr. H. saw the poor animal, and stated that every thing was going on favourably; but it never recovered its natural vivacity, and its breathing remained quickened; and seven days afterwards the bleeding returned, and the patient died. Four ounces of coagulated blood were found surrounding the artery, which contained no coagulum, nor had any process taken place for closing the wound in it. Had the external wound healed, there would have been a spurious aneurism. —We must consequently suspend our judgment for awhile.

A Case of Aneurism of the Heart in the Horse.

By M. Vezelisse, *V. S. of the 5th Squadron of French Artillery.*

On the 14th of July, a mare, above the middle size, excessively fat, and of a lymphatic temperament, was brought to me with intense ophthalmia in both eyes, and which had occasioned slight symptoms of fever. I bled to the amount of three pounds, inserted two setons in the chest, and prescribed a low diet. This was at seven o'clock in the morning. At eleven the animal ate with considerable appetite, and seemed to continue well until four o'clock on the following morning, when she lay quietly down, and her respiration became quickened to a prodigious degree. I was immediately sent for. I found her lying on her right side, her flanks agitated to a degree difficult to describe; the nostrils extremely dilated; the eye fixed; the pulse imper-

ceptible. She kept up a continual movement, flexing and extending the left fore leg, while convulsive sighs escaped from her chest, indicating very great suffering.

Although not knowing to what to attribute a disorder so serious and so sudden, and being assured that it could not be traced to any derangement of the digestive canal, I could not remain an inactive spectator, but endeavoured to relieve the acute pain which the animal evidently experienced. I administered an ounce of laudanum in a bottle of water, which she drank with pleasure, or rather with avidity; and I made her swallow a second bottle of pure water.

From that time until about six o'clock the movement of the flanks ceased for a few seconds at intervals, and the moaning also ceased. At six she was quite calm, and endeavoured to raise herself, but could not accomplish it without the assistance of several men. She was staggering, and seemed to be frightened. I made them rub her well down, threw some warm clothing over her; she perspired abundantly, and was sufficiently calm to whinny a little.

I congratulated myself on the success of the treatment, and thought that the affair was terminated; when, at eleven o'clock, she again lay down, struggled a little, and died.

Astonished at a death so unexpected, I followed her carcass to the knacker's, and proceeded to examine her.

The cranial cavity contained a little serosity. The membranes of the brain adhered firmly to that organ, which could only be extracted with difficulty, and mutilated. It was very large—its substance was softened, and its vessels, as well as the plexus choroides, gorged with blood. The substance of the cerebellum appeared to me greyer than in its natural state; and the vessels of this cerebral appendix participated in the repletion of the rest of the encephalon. In lifting the skin which covered the neck and chest, I was struck with the excessive volume of the sub-cutaneous veins, and particularly of the jugular, which was at least ten lines in diameter.

On opening the chest, I discovered the right lung on which the mare had lain. It was in a state of extraordinary congestion, considering the little time that had passed since her death; but my surprise was greater when, after lifting the anterior lobule of this lung, I discovered, through the mediastinum, which was ruptured, a voluminous mass of a fatty appearance, which I immediately recognized as belonging to the pericardium: it adhered closely to the heart, and there was only a small quantity of fluid in the bag.

More and more astonished, I sought to discover the cause of this extraordinary anatomico-pathological phenomenon; and I

found that the trunk of the aorta, prodigiously distended, deviated from its natural situation in a manner which the lying down and the weight of the animal had favoured. The heart was so much enlarged, that its exterior diameter, taken at the summit of the ventricles, was ten inches, and its height from the summit to the base, a foot. The walls, considerably reddened, were friable—the interior of the cavities was filled by a coagulum of perfectly black blood; the mitral and tricuspid valves were completely relaxed, and many of the fleshy columns were broken.

The left lung presented only a red infiltration, common to all the organs of a dead animal. The aorta had acquired, from its origin to its division, and thence to its exit from the thorax, a volume proportional to that of the heart, and its walls, ordinarily strong and thick, were soft and thin, scarcely exceeding in some places a line in thickness.

After having examined the principal arterial ramifications I proceeded to open the abdomen: all the viscera were perfectly sound, except that they presented a little increased vascularity, common to the whole frame.

Curious to ascertain the cause of this anomalous disease, which had in seven hours destroyed this animal, I inquired into her previous history:—

Received at Douai in the course of the preceding February, in a state of poor condition: she had for a long time wavered between sickness and health; but that at the beginning of May, the green food produced a new æra in her existence, for she began immediately to acquire that excessive fatness which she retained until her death. She had been exposed to no kind of work which could have injured her constitution; nor was there any reason to suspect that she carried within her the germ of so serious a disease. Thus the immediate causes of her death could only be conjectural, unless we attribute it to the excessive quantity of fatty substance which covered the pericardium, the intestines, the mesentery, the kidneys, and every part where the cellular tissue is abundant; but I apprehend that we cannot in this way account for the suddenness of the death.

The Editor adds, that he thinks M. Vezelisse might, without danger of error, consider the death of the mare as the immediate effect of the retarding of the arterial circulation, partly from the thinness of the walls of the heart and the arterial trunks, and partly from excessive fatness.

(Journal de Méd. Vét. Théor. et Pratique, Nov. 1831.)

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ANATOMY OF THE HORSE.

[Continued from page 63.]

ABSORBENT SYSTEM,

COMPRISING THE

ABSORBENTS AND ABSORBENT GLANDS.

THE absorbents constitute that system of vessels which are employed in *absorbing* alimentary and other matters, and conveying them into the general circulation.

Division.—These vessels were, when they were first discovered, supposed to exist of different kinds in the body: hence the appellations *lacteals* and *lymphatics*. It is now, however, ascertained, that they exhibit no difference whatever in their anatomy; and also that, although the lacteals are ordinarily employed in absorbing chyle from the intestinal canal, they are, equally with the lymphatics, capable of taking up other matters.

The only natural division they appear susceptible of, is, into *superficial* and *deep-seated* absorbents: the former are distributed in great numbers immediately beneath the skin, and perforate it through almost every point; the latter are commonly found ramifying in company with the trunks of the bloodvessels, more especially with the veins.

Peculiarities.—The absorbents are so minute as to bear no sort of comparison with the bloodvessels, in point of magnitude. To make up for this, however, they are in general vastly more numerous; and have much more frequent anastomosis. They also exhibit peculiar tortuosities in their course, and are everywhere beset with valves.

Glands.—The absorbent glands are small oval-shaped bodies, varying in magnitude from a pea to a walnut, found in many unexposed parts of the body along the course of the absorbent vessels. Generally speaking, they exhibit a reddish hue: but there are some that assume a dark blue, and even a black complexion. They exist mostly in groups or clusters—rarely, solitary.

Communication.—The superficial and deep-seated vessels communicate very frequently with each other, and never fail to send off, in addition, other anastomotic branches to whatever solitary absorbents there may be in the vicinity. The glands, likewise, are linked together by absorbent tubes of inter-communication running from one to the other.

Demonstration.—The following different methods of proceeding with a view to demonstrate these minute and ordinarily hardly visible vessels, are extracted from the laborious and accurate researches of the late celebrated anatomist, Mr. Cruikshank:—

In an animal opened alive, some hours after it has been fed, the lacteals are seen turgid with chyle: they may also be made visible by throwing coloured thin fluids into the intestines; or, by making ligatures on the trunk of the anterior mesenteric artery, which will include the trunk of the absorbents. An eye accustomed, readily distinguishes lacteals upon the intestines from arteries and veins, even when they are collapsed and empty: punctures may be made with a lancet, and the vessels injected with quicksilver by means of a tube formed expressly for that purpose. I have sometimes injected lacteals from punctures made by the sides of veins, where I knew they must be, though they were then invisible to the naked eye.

Upon the liver and lungs lymphatics are frequently visible, and may be injected by puncturing one of the small branches; but the valves almost always make the injecting of them from the trunk to the branches impracticable. Pressure in the course of the absorbent circulation will commonly force from the extreme branches into the trunks some little reddish or brownish fluid, making the latter visible, which may then be punctured and injected.—Watery fluids thrown into the arteries, veins, or ducts of glands, very commonly get into the absorbents, and render them visible.—One of the best methods is to previously inject the arteries and veins of the part, and afterwards macerate it for some days: putrefaction then takes place, air is generated in the cellular membrane, whence it gets into the orifices of the lymphatics, and uniformly fills their branches.—The best subject for these injections is one whose limbs are without fat and are dropsical, but not too much so.

In parts where glands are to be found, it is only necessary to puncture the gland, and introduce a tube filled with quicksilver, or push the pipe into its substance without any previous puncture. The mercury thus fills the cells of the gland, and from these the lymphatics. The thoracic duct itself is most successfully injected in the same way, that is, either from glands upon the mesentery, upon the bodies of the lumbar vertebræ, or

those upon the inside of Poupart's ligament.—When vessels are injected, and very much resemble lymphatics, the best method of determining whether they are or are not lymphatics, is to trace them to the nearest lymphatic glands: if they terminate in them in the usual manner, they are lymphatics.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

PLEA IN FAVOUR OF THE VETERINARIAN,

CONTAINED IN A LETTER TO THE EDITORS AND TO THE SENIOR VETERINARIANS.

By Mr. KERR, *V. S. Southampton.*

Gentlemen,

I BEG to acknowledge the continued gratification and information I experience in the perusal of your Journal. It has just entered on its fifth year; and I rejoice to find, though it does not increase so rapidly in bulk as I could wish, its temper has become more uniform and mild. We should not, however, too strongly censure the desperate irritability of its temper in its earlier days: it was, I doubt not, disgusted with itself; *and appeared as though by her first inspiration to inhale all the degradation of her ancestors and present generation:* she has, notwithstanding, respired them with as much mildness and gentleness as could be expected, knowing full well that she must have imbibed the disposition of the two by whom she was begotten,—two fully and acutely sensible that they are members of a wretchedly degraded profession—laudable in itself, and requiring all those qualifications which are so justly appreciated in the members of the medical profession.

In its early days it seemed that mild and nutritious food was incompatible with its nature: it will now, however, I feel confident, convert all that is proferred from our *graduated members* into healthy chyle, which, during its general circulation, *will powerfully tend to improve the condition of us all;* for it matters not how clear its brain, or how great the capability for improvement, without nutritious food, which is more particularly indicated in growing animals, it must decline: let me, then, intreat, which I urgently do, from my brother veterinarians,

and more especially those who are favoured with great practical opportunities, to feed the little nursling better. If, kind sirs, you were ignorant that such a being existed, no blame could be attached; but well I know that you look anxiously at the commencement of every month "whom to behold but thee:" then to find her with an earnest desire to learn, that she may the better instruct, and still not feed! Nothing will be lost to the individual who makes known to the veterinary world an improvement in practice, or an extraordinary case—all will be gain. Our employers, should they chance to see in a public journal a discovery of his veterinarian, will the more appreciate his talent, *and his generous desire for the welfare of his profession.*

Another great and decided drawback occasioned by the senior practitioner not contributing cases is, *that it tends very materially to check any desire the junior one may have in so doing.* I am not surprised at this, if he has a proper sense of modest diffidence: he dreads being thought vain and forward, so that for want of *example* he is prevented communicating to his brethren, senior and junior, information instructive and pleasing.

I do hope, then, that our elders will be induced to such generous doings; favours which will be duly appreciated by myself, and the rest of the profession, enabling them at the close of their professional career to look with more pleasure on the retrospect.—I have the honour to be, Sirs,

Your obedient Servant,

James Kerr, V. S.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE VII.

Glanders—its Symptoms and Post-mortem Appearances.

I acknowledge, gentlemen, that I enter on the subject of my present lecture with some reluctance. The disease of which I have to speak has been recognized from the time of Hippocrates of Cos, and few modern veterinary writers have given a more accurate and complete account of its symptoms than we find in the works of the "Father of Medicine." Three-and-twenty hundred years have rolled on since then, and we are not agreed as to the tissue primarily affected, nor as to the actual nature of the disease. As to the cure of glanders, we know nothing about it. We hear of many specifics: some of them have their day—but a

short one,—and are heard of no more, until reproduced as new discoveries. The truth of the matter is, that we have amused ourselves with worse than useless speculations and theories, instead of being employed in the patient accumulation of facts.

We must pursue our course slowly and cautiously. I will first endeavour to connect together the prevailing symptoms; they may possibly lead us—they alone can lead us—to the part primarily affected, and to the nature of the morbid affection of that part, and to the cause of that affection; and, these important points being settled, we may obtain a little knowledge as to the prevention of the disease, although we may be compelled to leave the remedial treatment pretty nearly where we found it.

ACUTE AND CHRONIC GLANDERS.

Before, however, I describe the symptoms of this disease, I must enter my protest against the common division of glanders into acute and chronic. I am aware that it exists under these forms; but I cannot allow this to any thing like the extent that has been represented by some; or that it is so essentially different in its nature and character, and governed by such totally opposite laws. There is this impropriety in our division, that the chronic here comes first, and the acute succeeds. A discharge is observed from one nostril or from both; it continues for months and years, and neither the health nor the usefulness of the horse is impaired; but, all at once, the discharge increases,—chancres appear on the septum—the respiration is laborious—the cough is urgent—the animal wastes away; farcy buds appear along the course of the superficial absorbents—they ulcerate, and death quickly closes the scene.

It is like the scrofula of the human subject; there are small glands under the chin or the ear, or about the throat, moveable, soft, productive of no inconvenience, and so they continue for one, two, or several years; when all at once they rapidly enlarge; they burst; the constitution becomes affected; the ulcers spread; the patient becomes emaciated; tubercular phthisis is established, and he dies. Now these are only different stages of the same disease—various causes, known or unknown, retarding or hastening its full development and fatal termination. We may, if we please, call these stages chronic and acute; but we shall be betrayed, as we have been in glanders, into inexplicable confusion, if we regard them as different diseases, and governed by different and contradictory laws.

SYMPTOMS OF GLANDERS.

Nasal Discharge.—The earliest symptom is, almost invariably, an increased discharge from the nostril; small in quantity—con-

stantly flowing—*not sticky at first*—aqueous—a little mucus gradually mixing with it, and this continuing for an indefinite period of time before it assumes a viscid character.

Here, gentlemen, is an error into which our best writers on veterinary pathology have fallen. They have described with sufficient accuracy the middle stage of glanders, but they have overlooked the early and most important one, when a cure might, if ever, be effected, and when the mischief resulting from contagion is most frequently produced. The discharge of glanders is not sticky when it may be first recognized. It is aqueous or mucous, but small and constant, and is thus distinguished from catarrh or nasal gleet, or any other defluxion from the nostril. I would then wish to impress it on your minds, that this small and constant defluxion, overlooked by the groom and the owner, and too often by the veterinary surgeon, is a most suspicious circumstance.

We owe a great deal to Mr. James Turner here. He first, or chiefly, directed our attention to this important and disregarded circumstance; indeed he is so suspicious of mischief, that although a horse is in ever so good condition, if he has this small constant discharge, and especially from one nostril, he separates him at once from his companions. It is a very proper precaution. The owner will not be offended, although this defluxion should not ultimately betray lurking mischief of a worse character; and he will give you credit for vigilance, for discrimination, and pleasing attention to his interest, if you should be right in your surmise.

Mr. Turner relates a case so much in point that I must not omit to quote it. A farmer asked his opinion respecting a mare in excellent condition, with a sleek coat, and in full work; he had had her for seven or eight months, and during the whole of that time there had been a discharge from the right nostril, but in so slight a degree as scarcely to be deemed worthy of notice, and especially as there was no adherence of the submaxillary gland, which was not larger than a tick-bean, and quite loose. He now wanted to sell her, and, like an honest man, wished to know whether he might conscientiously warrant her. Mr. Turner very properly gave it as his opinion, that, the discharge having existed for so long a time, he would not be justified in sending her into the market. The farmer ordered her at once to the slaughter-house.

A farrier, however, whose ideas of glanders had always been connected with a sticky discharge and an adherent gland, met with her there, and said that Mr. Turner had committed a most egregious blunder, and bought her and led her away. Three

months passed on, when Mr. Turner, examining the post-horses in a neighbouring inn, discovered that two of them were glandered, and two more farcied; while, standing next to the first that was attacked, and his partner in work, was his old acquaintance the farmer's mare, *with the same discharge from her nostril,* and who had, beyond question, been the cause of all the mischief.

This, gentlemen, will be an instructive lesson to you. In every examination for soundness, in every medical examination of the horse, pass not over the slightest increased nasal defluxion, even although it is nearly or entirely of an aqueous character. Endeavour to get at the history of this discharge, the length of time it has existed, and its quantity and constancy. Do not be misled by its want of viscidity, whatever your favourite authors may tell you. When you read that "there always remains a peculiar degree of viscidity and glueyness in it (the discharge of glanders) which distinguishes it from all other mucous and purulent secretions," refer this to the *second* stage of the disease, and remember that, for many months before this, the disease may have existed in an "insidious" and highly contagious form. In the majority of cases, however, some degree of stickiness does characterize the discharge of glanders from a very early period.

The Left Nostril oftenest affected.—It is a singular circumstance that this discharge is much more frequent from the left nostril than from the right. M. Dupuy says that, out of eight cases of glanders, he met with one only with discharge from the right nostril alone. This difference in the affected nostrils does not exist to so great an extent in our practice, and I am inclined to suspect that there must have been some error in the observations made by the learned professor; but in two cases out of three among us the discharge is from the left nostril alone. I know not of any anatomical or physiological fact that will account for this. I could account for the left leg failing oftener than the right;—we mount and dismount on the left side—the horse generally leads with it; there is more wear and tear of that limb; but I cannot satisfactorily account for this usual affection of the left nostril. It is true the reins are held in the left hand, and there may be a little more bearing and pressure on the left side of the mouth; but I confess that that does not sufficiently explain the result.

You observe that I have used the terms *left* and *right* instead of *near* and *off*. I do so advisedly, because the latter, originally the mere slang of the stable, however much in use among horsemen, and to a certain extent, perhaps, necessary to be adopted in our communications with them, are terms that have never been adopted in any foreign veterinary school. They are perfectly un-

known among scientific men abroad, and unrecognized by medical men at home, except those who have been, and occasionally a little too deeply, taught in the school of the horseman and the groom. Now, that we are attempting to overtake and to vie with our veterinary continental brethren, and to vindicate our relationship to our medical brethren at home, it may be advisable, in our scientific discussions at least, to forget the vocabulary of the stable.

Lessons of Caution.—If we deny then the uniform stickiness of the discharge, we may occasionally be a little puzzled. We shall be so, and it will teach us to be more cautious in our professional examinations, and less positive in some of our decisions. I have heard a practitioner boast that he had passed (as sound) no fewer than sixty horses in one morning. I thought it a disgraceful confession, when I first heard it; and the more I have thought of it, the more have I been convinced that it involved gross dereliction of duty to his employers. It is well known that there is one practitioner who has the conducting of far more examinations for soundness than any other in the metropolis. His reputation is founded entirely on his caution. He employs what some would think a very unnecessary portion of time in every examination; and has been known to detain a horse one, two, or three days in his stable before he would give a decided opinion. We are beginning to learn a lesson of caution already, when we find the difficulty of distinguishing the characteristic discharge of glanders. I shall have too many occasions to impress this lesson upon you as we go on.

Progress of the Nasal Discharge.—Inflammation cannot long continue without producing some disorganization of structure or alteration of function in the affected part; and, the disease having existed for a greater or less length of time, the secretion from the nose is altered in quality as well as increased in quantity, and we have the peculiar viscidity of which all our writers speak, and which cannot be mistaken. The discharge is more pellucid than that of catarrh—it has seldom any offensive smell, it still continues to flow constantly on, and it has a singular stickiness, unpleasantly adhering to the finger, and sometimes in a manner glueing the nostrils together. This also continues for an indefinite period of time, until the disease has committed greater ravages on the membrane which is its seat, and the discharge becomes purulent, bloody, fœtid. Ulceration has then taken place the membrane of the cavity, or of some of the cells connected with it. The colour of the septum will now begin to change. It has usually been described as pale, or livid, or brown, in glanders. In the early stage of the disease, however, it has a

decided, and sometimes intense, redness of hue. It indicates inflammation, and the degree of inflammation which exists. But when that inflammation has debilitated the membrane on which it existed, and the process of ulceration commences, it becomes pale, livid, leaden-coloured, or brown.

Chancrous Ulceration of the Nostril.—The ulceration once established, the disease hastens in its progress, and the sores begin to be visible on the lower part of the septum; they are sores of a peculiar character,—not mere abrasions—not stripes of excoriation as we sometimes see in nasal gleet—not the undefined ragged ulcerations, which are usually consequent on inflammation;—but chancres,—distinct ulcers, with rounded, elevated, well-defined edges. You will observe their peculiar character in these preserved specimens, and more particularly in this, from the recent subject. You will particularly observe that they are found, not scattered here and there upon the septum, but in regular succession: they follow the course of the vein which, as you may here observe, runs down towards the centre of the septum, and contiguous with which, and lying almost in contact with it, are the absorbents of the septum. I beg your particular attention to this, and with reference to another form, or perhaps stage, of glanders which I shall presently have to consider, namely, farcy—inflammation and ulceration of the superficial absorbents, and shewing already the connexion between these maladies, or rather their identity.

They run down almost to the orifice of the ductus ad nasum. Let me once more caution you not to confound that orifice with one of these chancrous ulcers; or to mistake it for the first appearance of ulceration on the lower part of the septum. Take care likewise that you do not mistake for ulcers, little spots of rather concrete mucus lying on the membrane. You would not be the only persons who have done so, somewhat to the compromise of their professional reputation. Always try whether you can rub off the suspicious spot with your finger.

These ulcerations sometimes spread over the greater part of the cavity. In these specimens you may trace them plainly on the æthmoid, and along the inferior edges of the turbinated bones. They occasionally produce, or are accompanied by, caries of these bones; they eat fairly into them; but the ulcers on the septum are in most cases superficial, and the perfect separation is still preserved between the diseased nostril and the sound one. When these chancres appear, the case is usually a lost one; but in a few instances, either by the power of medicine or of nature, these chancres take on a healthy character, and cicatrize and disappear. A fine specimen of this is now on the table.

Ulcers have rarely long appeared in the nostrils before the constitution becomes affected; the coat stares; it has a peculiar pen-feathered appearance, scarcely ever seen in simple want of condition. There is a strange dryness and stiffness of the skin, and the hair comes off with the slightest touch; the belly is tucked up to an extraordinary degree, and the strength rapidly declines; there is cough, difficult and painful; the inflammation or ulceration has then travelled down the larynx and trachea, and the lungs are evidently affected. The breathing becomes difficult from another cause, the lining membrane of the nose is thickened by these inflammatory and ulcerative processes; the air-passage is obstructed and almost closed, and each act of respiration is accompanied by a hoarse roaring sound. There is a peculiar tenderness about the forehead; the membrane lining the frontal sinuses is inflamed or ulcerated; the integument of the forehead becomes thickened, and gives an appearance of swelling; the whole head and face, and the muzzle particularly, enlarge. Farcy now is superadded to glanders, or glanders has degenerated into farcy, or rather, perhaps, more of the absorbents are involved. Little tumours now appear about the muzzle, and face, and neck, following the course of the veins (for these point out the direction of the absorbents), and the tumours rapidly ulcerate. Tumours, still pursuing the path of the absorbents, next appear on the inside of the thighs, and they are connected together by a corded substance (this is the inflamed and enlarged lymphatic); and ulceration, rapidly spreading, soon follows the appearance of these buds. The deeper-seated absorbents are now affected; one or both of the hind legs swell tremendously, and become stiff, hot, and tender. The loss of flesh and strength can now be marked every day; the membrane of the nose becomes of a dirty-livid colour; the membrane of the mouth is strangely pallid; the conjunctiva is infiltrated with a yellow fluid, like a sheep with the rot; the discharge from the nose becomes more profuse and insufferably offensive; the animal presents one mass of putrefaction, and at length dies exhausted.

Enlargement of the Submaxillary Glands.—I have been delineating the usual succession of symptoms when ulceration has once appeared in the nostril; but, long ere that, possibly many a month before, there is another symptom whence the disease took its name,—enlargement of the submaxillary glands. A portion of the fluid secreted from the membrane of the nose, altered in character by the peculiar inflammation there existing, is absorbed; and, as it is conveyed along the lymphatics, some of it passes through the glands, which thus become inflamed and enlarged: in fact, they sympathize with every inflammatory affec-

tion of the lining membrane of the nose; and the horse can scarcely bear the slightest cold without the glands beneath the jaw becoming swollen and tender, and, sometimes, proceeding to suppuration. There is, however, a peculiarity accompanying the inflammation which they take on from the absorption of the virus of glanders; they are rarely large, except at first; still more rarely very hot or tender: but they are characterized by a singular hardness, by their proximity to the jaw-bone, and by their apparent and often actual adhesion to it. The adhesion is produced by the inflammatory action going forward in the gland and the effusion of coagulable lymph. This hardness and adhesion accompanying discharge from the nostril, and being on the same side as the nostril whence the discharge proceeds, affords proof, not to be controverted, that the animal is glandered. This is a general and decisive symptom, but not an invariable one. We are not justified in pronouncing a horse with slight discharge from the nostril to be safe, because the glands are neither adherent nor much enlarged. We must not forget Mr. Turner's case, in which, although the tumefied gland was on the same side as the discharge, and the disease had existed at least eight months, it was not larger than a kidney-bean, and had not the slightest tenderness or adhesion. I have seen cases in which the distinct gland was not larger than a pea, and others in which there was no enlargement of the glands, and only a thickening, and that a very slight one, of the surrounding cellular texture. Do not, therefore, fall into the common error about this. You may trust to the *adhesion* of the gland, but be not misled by its *looseness*, or even by its *absence* altogether. The widow of the proprietor of some of the Paddington coaches had a horse from one of whose nostrils there had, for a considerable time, been a slight aqueous discharge; there was a little thickening of the sub-integumental cellular substance beneath the jaw, and a small loose knot, of the size of a pea, could be felt within it. No one, not even the veterinary attendant, suspected mischief; and it was not until one horse after another had become glandered, and six of them had died, that the true nature of the evil was apparent. Another lesson of caution, gentlemen,—involving the subject of glanders, and the examination with regard to glanders, in some difficulty, but still leaving sufficient to guide you, if you will be patient and circumspect.

Diseases resembling Glanders.—Strangles has sometimes been mistaken for glanders, but he must have been very inattentive who could have been guilty of such a blunder. Strangles is a disease of young horses; it is accompanied by fever, cough, sore throat, wheezing, enlargement, and that not of a single small

gland, *but of the whole subjacent cellular texture between the jaws*,—a phlegmonous tumour forming in it—forming in the *centre* of it—becoming prominent toward the middle, evidently containing a fluid, and at length bursting; and then the fever abating, and the thickening gradually subsiding and the horse doing well. Glanders can scarcely be confounded with common catarrh or sore throat, or epidemic catarrh with enlargement of the glands of the throat. There is fever—that which is rarely or almost never seen in glanders, loss of appetite, inability to swallow, *profuse* discharge, *mucous*, *purulent*, *irregular*, the gland tender and hot and moveable. With proper treatment the fever abates, the cough disappears, the swellings subside, and the discharge from the nose gradually ceases.

The post-mortem appearances of glanders are our surest guides to that object at which I have been aiming in this long detail of symptoms—namely, the seat and character of the disease. The nostril is generally more or less blanched, but with spots or lines of inflammation of considerable intensity. Ulceration is almost invariably found, of a chancrous character, on the septum, and often on the æthmoid and turbinated bones. The ulcers evidently follow the course of the absorbents—sometimes almost confined to the course of the main vessel, or, if scattered over the membrane generally, thickest over the path of the lymphatic, and evidently radiating from that line to other parts. The specimens before you place this disposition of the chancres in the clearest point of view. The æthmoid and turbinated bones are often filled with pus, and sometimes eaten through and carious; but in the majority of cases the ulceration is confined to the external membrane, although there may be pus within. In aggravated cases the disease extends through all the cells of the face and head.

In these specimens you trace its path down the larynx and trachea, and the ulcers still follow one line, that of the main trunk of the absorbents. In aggravated cases its course can often, but not always, be traced on to the lungs. It produces inflammation in those organs, characterized in a few cases by congestion; in others by that peculiar consequence of congestion, hepatization, in which the cellular texture of the lungs is obliterated, a portion of them becoming one uniform mass. Most frequently, however, when the lungs are affected at all, we find tubercles—miliary tubercles, minute granulated specks on the surface or in the parenchyma, and not accompanied by much inflammation. Here are specimens of this affection of the lungs in glanders. In a few cases we have larger tubercles which have softened and burst, and terminated in vomica.

The appearances of the lungs to which I would chiefly direct your attention, and as throwing great light on the primary seat of the disease, are these—viz. the occasional absence of any morbid affection of the lungs, even in the most aggravated cases of glanders, and the correspondence between the lung that may be affected, and the nostril whence the discharge proceeded.

A record of nineteen cases of discharge from the left nostril presents the following results:—In four, no affection of the lungs; in ten, congestion or hepatization, or other marks of inflammatory action in the left lung only—the right lung was perfectly sound: in two cases, both lungs were affected, but the left lung most so; and in three cases both were nearly equally affected. In eight cases of discharge from the right nostril, two presented no disease of the lungs; in four, the right lobe only was diseased; in one, both were affected, but the right lung most violently; and in one, both lungs were equally diseased. In ten aggravated cases there was discharge from both nostrils; the left lung only was diseased in one; and in the other nine, both presented nearly equal traces of inflammation. The lesions of the abdominal viscera, and of the brain and its membranes, seemed to be perfectly accidental.

We are now, I think, gentlemen, prepared to come to some satisfactory conclusion as to the primary seat and nature of glanders in our next lecture.

LECTURE VIII.

GLANDERS CONTINUED.

The Lining Membrane of the Nose the primary Seat of Glanders.—There can be no doubt I think, gentlemen, of the conclusion to which we must arrive, that the primary seat of glanders is the lining membrane of the nose. A discharge from the nostril is that which causes the disease to be first suspected, which attends it through every period of its course, and accompanies it at its fatal termination. It is inflammation of the pituitary membrane, recognized by that which is the earliest and invariable symptom of inflammation of a mucous surface, increased secretion—secretion altered in character as well as quantity, becoming vitiated, acrimonious, malignant. I will not enter into the controversy whether it is a specific inflammation—one that is not governed by common laws—or whether the malignant and infectious character which it speedily assumes may be traced to the extreme vascularity and sensibility of the membrane, and the absurd and injurious irritation to which it is so much exposed.

The Progress of the Inflammation.—It is inflammation, whether specific or common, of the pituitary membrane—possibly for months, and even for years, confined to that membrane, and even to a portion of it—the health and the usefulness of the animal not in the slightest degree impaired. Then, from some unknown cause, not a new but an intenser action is set up; the inflammation more speedily runs its course, and the membrane becomes ulcerated, and the ulcerations spread on either side, down the septum, and along the pharynx, the larynx, and the trachea. The ulceration spreads through the medium of the absorbents—the superficial absorbents first. The secretion is of so acrimonious a nature, that the vessels through which it passes take on inflammation; and the virus accumulating about the valves of the absorbents, the inflammation runs higher there, and ulceration speedily follows, and assumes that peculiar chancrous form which characterizes inflammation of these vessels.

Observe these specimens; see, running along the course of the main trunk of the absorbents of the membrane of the septum, or radiating from it, these distinct and separate ulcerations, and mark the elevated line which connects one with another. The simple increased secretion does not empoison, or even excoriate, the membrane, nor does it produce any constitutional affection while the membrane remains sound; but, ulceration having once commenced, the disease is propagated from part to part, and with more or less rapidity, through the medium of the absorbents, and the whole frame becomes vitiated. This more general and constitutional affection we term *farcy*. When the air-passages and the respiratory organs alone are involved, we denominate it *glanders*.

The Lungs not the primary Seat of Disease.—It is plain that the lungs are not the primary seat of disease. When they are affected, it is by continuity of membrane, and by the gradual spread of inflammation and ulceration. In some of the cases which I mentioned in my last lecture, and which were suffered to run their course, the lungs were sound. In the majority of cases the inflammation or disorganization was confined to the lung corresponding with the nostril whence the discharge had proceeded. When the lungs do seem to participate in the disease, they are comparatively but slightly affected. There are miliary tubercles, but with only slight congestion, and no ulceration. Where vomicæ are found, peripneumony had preceded or accompanied glanders, and was excited by other causes. In latent or insidious glanders there is no poison in the blood, no unhealthy state of the system; every function is fully and per-

fectly discharged. Absorption of the fluid discharged from the ulcer must precede the constitutional affection.

I have described the process from inflammation to ulceration, and from that to the empoisonment of the system, as often exceedingly slow; but, as in the other constitutional affections produced through the means of the absorbents, it is sometimes quickened almost beyond belief. If the exciting cause of inflammation in the membranes has more than usual power, or, from debility or previous irritability, the membrane is predisposed easily and violently to take on inflammatory action, the disease will run its course in four-and-twenty hours; but the same appearances are presented, the same process is clearly marked: the ulcers follow the direction of the absorbents along the septum, and along the membrane generally, and along the trachea to the lungs. It is the same disease, but differing only, yet sometimes strangely differing, in the intensity and rapidity of propagation.

M. Dupuy's Notion of Glanders.—M. Dupuy, and after him many of the French veterinarians, entertain a curious notion of the nature of glanders. He calls it "a *tuberculous disease.*" He supposes that innumerable small, firm, grey, bodies, miliary tubercles, are formed on the upper part of the septum, or in some of the sinuses, particularly the frontal ones. That for a certain period of time they remain unchanged, and during that time do not in the slightest degree interfere with the health of the animal; nor are there any means of ascertaining their existence, except that by their presence as foreign bodies they so far irritate the membrane on which they grow, as to cause a somewhat increased secretion from that portion of the membrane. They continue in this state an indefinite period of time. He thinks that he has traced their existence for five or six successive years. At length from some unknown cause they become disorganized; they soften and ulcerate, and then we have the chancre of glanders. These chancres sometimes penetrate through the perichondrium and the cartilage, the periosteum and the bone; they discharge a poisonous fluid, a portion of which is absorbed: then the whole frame becomes affected, and the disease may be communicated to others.

This theory is very ingenious, but it is deficient in proof. I am not aware of any English veterinarian who has detected these tubercles; and of one thing I am certain, that, if they exist, the disease is contagious long before they proceed to suppuration.

GENERAL VIEW OF GLANDERS.

Now then, gentlemen, we can conveniently pause for awhile. We are arrived at a point whence we can command much of the

path we have yet to travel. Let us look around us a little, and somewhat retrace our steps. *Glanders is inflammation of the Schneiderian membrane,* strictly local for awhile, and often for a long while, and during its insidious state; and even when the discharge becomes gluey, and sometimes after chancres have appeared, the horse is apparently well. There are hundreds of glandered teams about the country with not a sick horse among them. Do not listen to the accounts which you hear of the glandered horse being necessarily more or less out of condition, or that some deviation from health is necessary to his receiving the infection of glanders. Do not puzzle yourselves with the distinction between "healthy and unhealthy disease," a strange connexion of terms, and as unintelligible as many parts of an otherwise valuable work on glanders. Quit the dangerous yet often fascinating regions of theory, and look beyond the walls of an infirmary, where disease alone is found and lives. Go into practice, examine the stables of the farmer and the post-master and the waggon proprietor, and more particularly the miserable huts that shelter the barge-horse. These are the very domain of glanders, and many an inhabitant yields to its influence. When the disease has developed itself in all its chancrous malignancy and power, we see enough, and more than enough, of its ravages; but, ere it throws off the mask, although it is in full possession of its victim, where do we find horses so hardy, so healthy, so capable not only of ordinary but of cruel exertion? I cannot say that glanders, like the rot, improves the condition, but I am sure that often, and for a long while,—for months and even for years,—it does no injury to the general health. The inflammation is purely local, and is only recognized by that invariable accompaniment of inflammation,—increased secretion. Although that secretion is poisonous, and its neighbours fall victims to it, it affects not the animal whence it came. But this continued inflammation at length tells, or other circumstances increase its power and its effect, and the vitality of the tissue is destroyed, and suppuration succeeds; but not that of a healthy character—not that which is connected with reproduction,—it is malignant and destructive from the beginning; and soon another process commences, salutary or destructive, according to circumstances. There are absorbents on every surface; they are found on the surface of the chancres which are beginning to appear; and they take up the fluid which is secreted from the ulcers, and they soon feel its poisonous influence. The absorbents become inflamed and tumid, and, where the virus rests, as it were, namely, at the valves, destruction of the part ensues, and the chancres spread in every direction.

Some portion of the venom passes on, and is carried into the circulation, and mixes with the blood, and vitiates the blood. The experiment by Professor Coleman, of the transfusion of a portion of the blood of a glandered horse into a healthy ass, and the transfusion of the disease with it, was satisfactory on this point.

Then comes the constitutional affection. The membranes in the neighbourhood, and those most susceptible of irritation, first yield. Chancres proceed down the pharynx and the larynx, and gradually the ulcers spread over the frame. The acrimonious fluid, mingling with the blood everywhere, begins everywhere to attack that tissue which is most susceptible of its influence, namely, the lining membrane of the absorbents; and by degrees and in the most distant parts of the frame (the hinder extremities are a favourite situation) the absorbents become corded, and tumours appear in the situation of the valves, and ulcerations ensue. First, the superficial lymphatics are affected; then the deeper-seated become involved: the whole frame is empoisoned; farcy is established in its most horrible form, and death speedily closes the scene.

CAUSE OF GLANDERS.

What is the cause of this dreadful malady? Although it may by-and-by prove that we are powerless as to the removal of the disease, yet if we can trace its cause and its manner of action, we may do something in the way of prevention at least. We have been able to accomplish much in this way. Glanders does not commit one-tenth part of the ravages it did thirty or forty years ago; and it is now only found, as a frequent and prevalent disease, where neglect and filth and want of ventilation exist.

The Character and Office of the Schneiderian Membrane.—Its seat is the Schneiderian membrane; a highly vascular one—a tissue of bloodvessels—a membrane possessed of exquisite sensibility, specific and common, and these mingling together for the perfection of each. Thus vascular and sensitive, it is placed as a guard to the lungs; covering within and without those convoluted bodies which in a manner fill the whole of the nasal cavity, and it every where exposes its mucous surface; intercepting every deleterious substance, and even gas. Comparatively few particles penetrate to the pharynx, or if they do, the sentinel has given warning, and other air-passages take up the action. The rimæ glottidis refuse to admit, or the muscles of respiration unite to expel, the intruder. Little beside pure atmospheric air is destined to reach the lungs; or if the animal is destroyed by some deleterious gas, he dies more from the want of that oxygen which is necessary to the continuance of respiration, than from the actual stimulant or depressive effect of the inspired air.

The Schneiderian membrane is the guard of the lungs, and it arrests every intruder. No part of the frame has a more important function to perform,—no part is endowed with greater sensibility,—no part is exposed to so much injury. The currents of air which are continually traversing it; the thousand extraneous bodies which are impinging upon it; the pungent and poisonous vapours which are coming so incessantly in contact with it; all are sources of irritation and debility, and we need not wonder that it is so disposed to inflammation, and that that inflammation will run its course.

Alternations of Temperature.—Besides the injuries to which it is unavoidably exposed, there are others, and far more powerful, artificially and absurdly introduced. I have adverted to them when speaking of coryza. Nothing could be so debilitating or so dispose this membrane to inflammation and all its consequences, as the sudden change of temperature to which this sensitive membrane used to be exposed, in that destructive system of stable management which once everywhere prevailed, and which is still maintained in too many establishments. The heat alone of the stable, without the sudden and excessive change, would wear out the vital power of the membrane, by the constant state of excitement it produced.

Ammoniacal Vapours.—But, worse than this, and more connected with our subject (for these alternations of heat and cold are far more injurious to the lungs than to the membrane of the nose, and dispose more to pneumonia than to glanders,) there are the irritating pungent vapours which abound in every heated and closed stable. I have said that the lining membrane of the nostril, and the conjunctival membrane, are painfully irritated when we breathe but for a few minutes the atmosphere of these ill-managed stables. The horse breathes there all night and the greater part of the day. The injurious effect of these gases is spent on the pituitary membrane chiefly, or alone, with the exception of the eye. By it the ammonia, so plentifully extricated, is arrested and absorbed. If the slightest portion of it reached even the larynx, violent, and so long as the stimulus was applied incessant, cough would be excited. All the mischief which is done is inflicted on the conjunctival and Schneiderian membranes, disposing the one to the specific inflammation of ophthalmia, and the other to the inflammation of glanders, or supporting that inflammation when excited. The lungs are comparatively little or not at all affected.

Often-respired Air and the Vapours of putrefying Substances. There are also other changes going on in the air of the closed stable, not so deleterious as some have imagined, nor affecting

the constitution in the way that they have described, but sufficiently productive of evil. The often-respired air, and the gases extricated in the putrefactive fermentation of the filth of the closed and neglected stable, are depressive, perhaps, rather than stimulating—they are productive of low and typhoid diseases rather than of acute ones; and they produce their first, their grand, almost their only effect, on that mucous membrane, among the sinuosities and convolutions of which they wind, and by which, too, they are arrested and absorbed; or, if the constitution suffers, it is through the medium of this membrane, this frequent, prevailing, but little suspected, inlet of infection and disease. The membrane which we know does arrest the ammoniacal gas, so that scarcely an atom of it reaches the larynx, arrests likewise these deleterious vapours; but it suffers sadly in the discharge of this all-important function, and is disposed for low and typhoid inflammation, degenerating into, or perhaps constituting, glanders. Therefore it is that the foul stable is the very hot-bed, not of pneumonia, but of glanders; for it is the membrane of the nose, far more than that of the lungs, which is exposed to its fatal influence.

On this account is the paramount importance of free ventilation in the stable. We owe every thing here to Professor Coleman. While the cavalry barracks, forty years ago, were continually thinned by this equine pest (and I have heard that in one of the depôts, at the close even of the Peninsular war, several hundreds of horses were condemned in one morning), it is a disease now of comparatively rare occurrence among our troops. Agreeing in the general effect, and thankful for the result of ventilation, I am not disposed to cavil much, even when the principle is pushed to a somewhat extravagant extent. I can understand the good of it with reference to the disease now under consideration. These gases impinge upon the Schneiderian membrane, and, like the ammoniacal gases of the stable, are arrested and absorbed by it, and have their debilitating effect in the production of glanders. But when I am told that this want of ventilation is the cause of rabies in the dog and the rot in sheep, I do wonder a little. That wonder ceases when I consider how prone our best physiologists and pathologists have been to push their favourite theories too far; and that even the immortal Jenner, upon subjects not altogether dissimilar, and having reference to some of our domestic quadrupeds, rode his hobby-horse farther and more wildly.

Comparison of different Stables.—Want of cleanliness and ventilation are the grand sources of glanders; the latter acting to a certain extent; the former far more influential, but deriving

its greatest power to injure from an alliance with the latter. No stables used to be closer and hotter than those of gentlemen; they were perfect ovens; and the same foul air was breathed over and over again. There used to be, and there is still, pneumonia often enough; for there was an absurd and ruinous change of temperature; but glanders was an unfrequent or unknown guest. Why? The fæcal impurities were cleared away as quickly as possible.

The stables of the horse-dealer used to be, and still are, hot enough, in order to put a sleekness upon the coat; and there was and is plenty of catarrh, and catarrhal fever, and pneumonia, but no glanders, for cleanliness was the order of the day.

The farmer's stable was, and continues to be, ill managed and filthy enough: urine and dung accumulate from week to week, until the place is a perfect dunghill; there is no declivity to drain away the urine, no water to wash away the filth; but the same carelessness prevailed every where—below, around, and above, and the windows were broken, and the roof was anything but air-tight, and there was many a cranny in the walls, and the fumes were driven away as fast as they arose.

But the stables of the post-master, and the waggon-proprietor, and the proprietor of the barge-horse,—sometimes almost too low for an ordinary man to stand upright in, too dark for the accumulation of filth to be observed, too far from the master's eye for the stableman to do his duty, and where the fumes of the fæces and the urine are continually arising,—these, I have said, are the very hot-beds of glanders; there it is almost a constant resident.

Glanders is, in a manner, the consequence of stabling the horse. In many parts of the world it is unknown, as in South America and in Arabia; and it used to be in Portugal and in Spain; but in the two last, and in North America and in British India, it is now rife enough. Wherever our stabling, with all its absurdity, was introduced, there glanders followed in its train.

ON CATTLE MEDICINE.

By Mr. R. Sumner, *V. S. Birstall, near Leeds.*

To the Editors of "The Veterinarian."

Gentlemen,

I have been a constant reader of your valuable publication, called The Veterinarian, for the last two years, and hope it will continue to improve in the manner it has done during that time, and particularly as it regards cattle medicine,

a better knowledge of which is much wanted by the profession dwelling in the country. Having seen in Dr. Monro's *Comparative Anatomy*, and also in the late Mr. James White's *Compendium of Cattle Medicine*, that the cow has the power to direct its food or medicine into which of the four stomachs it pleases, I desire to know how to act when the first or third stomach is the seat of disease, and the excrement in a dry state, as I have often seen it.

I was called to a cow on the 28th November last, the symptoms of whose disease were as follows:—Blowing short, and groaning so loud as to be heard at a considerable distance; the horns, ears, and legs cold, with costiveness. I sent the following medicine:

Epsom salts and sulphur.....	each six ounces
Powdered croton seed.....	two scruples
Powdered ginger	three quarters of an ounce
Powdered caraways	one ounce:

the whole to be given in three pints of gruel, with four ounces of treacle. This purged her in about ten hours; but the owner fearing her death, killed her. I opened her soon afterwards; and, seemingly, the medicine had not entered either the first, second, or third stomach, as the meat in them was of a green colour, and rather soft; but the contents of the fourth was the same colour as the medicine, and very thin; therefore, I hope you will have the goodness to write to me, and give me your opinion respecting the cow's power of directing its food or medicine into which of the stomachs it pleases; and what should be done in case the cow does not direct its medicine into the stomach which is the seat of disease.

I shall feel the greatest pleasure in stating to you my treatment of any disease to which the cow is subject. The following I give in "milk fever," after a free bleeding:—

Epsom salts	one pound
Powdered croton seed	one drachm
Ginger	three quarters of an ounce
Pulv. caraway	one ounce
Mustard powder	two ounces:

in three pints of gruel, with one-third of the following mixture:

Oil of turpentine.....	four ounces
Lime water	three ounces
Olive oil	one ounce:

the half of the remainder to be given in two hours afterwards, and the rest at the expiration of four hours more, in a quart

of gruel, mixed with half a pound of treacle for each dose. If the bowels are not opened in eight or ten hours, I give

Sulphur.....	from half to three-quarters of a pound
Croton powder.....	half a drachm
Ginger	half an ounce
Caraway powder	one ounce
Mustard.....	one ounce

in a quart of gruel and half a pound of treacle; after which the beast seldom wants any thing but nourishment. I always draw the urine three or four times during the first twenty-four hours, as the bladder is often so paralysed, or the neck of it so constructed, that its contents cannot be voluntary discharged.

As to the disease commonly called the hoose, mentioned in Number 48 of The Veterinarian, by Mr. Dickens, I should treat it as for inflammation of the lungs, and in the following manner: first bleed from four to six quarts, according to size and condition; I then give

Powdered croton.....	from two scruples to a drachm
Epsom salts.....	ten to twelve ounces
Linseed powder	two ounces
Caraway powder	half an ounce
Nitre.....	one ounce and a half
Powdered digitalis	from half a drachm to a drachm,

in a quart of gruel. Then, every six hours,

White hellebore	from a scruple to half a drachm; or
Emetic tartar	one drachm
Linseed powder	four drachms.

If the bowels are not opened in fourteen or sixteen hours, repeat the laxative. With this treatment I never lose a patient if consulted within twenty-four hours from the beginning of the disease; therefore I think Mr. Dickins's treatment somewhat inert.

Though the red water is not so prevalent in this country, I hope I shall be excuseable in presenting you my treatment of that disease, which I have seldom found to fail. Bleed freely, and then give the following:—

Epsom salts	eight to ten ounces
Powdered croton	one drachm
Caraway powder	one ounce
Oil of turpentine	two ounces

in a quart of gruel. In bad cases I give powdered digitalis and calomel in drachm doses every eight or twelve hours, in gruel.

Hoping these few lines will be accepted,

I am, Sirs,

Your's, &c.

R. SUMNER.

A REPLY TO W. J. G.

By V. S.

To the Editors of "The Veterinarian."

Gentlemen,

THE few remarks I am about to intrude on your attention, you will, I know, cordially assign a corner to in your next number. THE VETERINARIAN is a work I warmly esteem, and solicitously desire to see advanced and supported, as an organ of much good in many ways to our profession, and a medium through which I trust yet to see much and many things successfully advocated and originated further to improve veterinary medicine and the condition of veterinarians. As a general storehouse and unbiassed disseminator of the opinions and views of all, it cannot reject or decline to register those of any, which are neither too personally vehement in expression, nor notoriously erroneous; consequently, it is in no degree responsible for the bearings or complexion of conflicting sentiments it may usher forth. I indulge in this preamble to account for the appearance in its pages of modes of thinking and conclusions so opposed as those of W. J. G. in your February number and mine.

What I am about to say is in no way meant as a rejoinder, or in reply to the communication of W. J. G. in particular. It is on the theme, in a more general sense, I wish to comment, for some few others have vented similar and corresponding animadversions. To say the very least, they are *too broad* to be in good taste; and I did trust that, with a certain faction, so unmeasured and deepened colouring had been voted into disuse. It is under two distinct points of view I would deprecate and decry such modes of speaking and writing of the profession and its present head: to wit, they are in degree unfounded and in tendency disserviceable on the one hand, and that they are personal, and illiberal, and undeserved on the other. They not only serve no good purpose, but in the eyes of the rest of the world are calculated to unnecessarily lower us. I am stimulated

by no prejudices either for or against individuals or views. True, in regard to the first, I have, like others, individually owed advantages in life to the most disinterested services on the part of our Professor; but though I acknowledge the debt, it shall not bias my convictions, or repress my expression of them, where I see things fairly and honourably put forward and stated for the well being or elevation of the profession; and, in regard to the latter, I but desire ever to see veterinary medicine and veterinarians respectable and respected, as they deserve to be. By injudicious attempts to rise too high, we certainly should not serve a legitimate cause; but by statements sinking us too low, we assuredly must seriously injure it. The world will hardly believe we would revile ourselves. Tirades such as those of W. J. G. paint the profession in colours we would require to blush at, were they not poetical. I am not one willing to admit the profession to be so low or degraded: I have not found it so even in individual instances. I will not say such a thing as that a solitary case of a not very dignified combination of "smith's work in general" with veterinary avocations is nowhere to be found; but let us regret it, and not exultingly hold it up to public animadversion! If it is adopted as a medium through which to strike at or wound our parent institution, I fear it is an evil one, and will but recoil on the profession. I ever feel suspicious that personal feelings or individual views are mingled up or sought to be vented or forwarded by a course so derogatory to its character and class in general. But besides, the profession is very young; it must necessarily always be secondary, and carry a certain drudgery with it. And let us look to earlier days of human surgery, and admire the other avocations *its* professors erewhile have combined with *it!* This is not for a moment meant to depreciate veterinary medicine: it has made wonderful advances, and can take a high grade—but it cannot be perfected in a day.

If there is room for reform, if there is room for improvement in the veterinary profession and its practisers, let us, in reputation's name! let us all lend a hand in our degree to forward whatever is for its honour and good; and that there *is* room for both is undeniable, as that both are in daily march forwards. But stigmatising what has been the fountain-head of our progression hitherto, and personally attacking and alienating the teacher we have so long looked up to, I may be allowed to doubt being a requisite or the best mode to prop our ambition. The great body of the profession, while it covets improvement, decries this as being any thing but one of the channels. And are we not growing too impatient? Impatience will but impede

us, if displayed in such characters and colours. As regards the professor, what the profession was and is, within his long career as its head, requires no wizard to shew up; and it is not unnatural to suppose, that he and the many who knew and valued him, seeing that what, if any thing, should have been a fair desire to discover and open up sources of improvement, whether in the elementary or matured grades of the profession, was seized on by some as a means to vilify and despoil him, should hold back, or lend but a lukewarm hand to claims and suggestions mixed up with so unjust and unworthy materials. It had the effect, at the time I more particularly allude to, to obstruct and injure the cause and the claims of the profession; and the violence and outcry was deprecated, disclaimed, and denounced by well-nigh all that we could expect to see take the lead in any general aims or efforts towards professional improvement and respectability. I am prompted to say all this, because I read W. J. G.'s communication with a feeling of distaste, as too much conceived in this injudicious and hurtful temper and tone. Our *status* is not so very low and degraded as he depicts; neither is Mr. Coleman so mercenary, or opposed to our credit or improvement: and on this let the verdict of all veterinarians pronounce between us.

Some who may honestly, but impetuously and irreflectively, call out how little has been done or is doing to advance the interests or improvement of the profession, forget that 1802 and 1832 are very different periods, and extraordinarily so when referred to as eras in the veterinary world. Come, I call on those who are sceptical, or occasionally bitten with a fit of carping, to indulge in a retrospective and comparative glance. To compare small things with great:—the artizan chips off huge and very self-demonstrative pieces from a rough unformed block, and appears to be giving it shapes and forms with satisfactory rapidity; but when he comes to more finely mould and polish its proportions, the progress is less perceptible, and seems wonderfully retarded. Well; look at veterinary science and veterinarians in the last century and in this. The strides they have made in knowledge and respectability have been great and rapid; but these cannot continue to be so eminently evident: the block is rough hewn, and more. And under whom has this change principally grown up and been achieved? At the eleventh hour shall we cavil at and seek to withdraw all consideration from him. True, veterinarians may owe much to themselves; but the profession ought not, and the great bulk does not, forget that it has been under Mr. Coleman, and from the parent institution, that what we are, at the least so far as we have advanced, has emanated. If under succeeding pro-

fessors it progresses in any thing like a similar ratio, it will have proved a fortunate and rapidly perfected profession, I think without presumption may be said.

W. J. G. says "ex uno disce omnes," and points to Mr. Coleman taking twenty guineas from a "bell-hanging, sauce-pan-making, smiths' work in general" fellow, and allowing him to enter at the college. Such a veterinary surgeon *may* be to be found; but I should be sorry to drag him per force forward; and the inference sought to be founded is invidious. This sort of thing were best left alone by those who sincerely and purely seek the elevation and improvement of the profession. It is to be solicitous to look only through the inverting or distorting end of the glass. Professors neither of human nor veterinary medicine have the power of rejecting any pupil who can pay his fees. Formerly, it may be objected, the diploma was too speedily and easily obtained, thereby encouraging individuals to come forward of very unfit qualifications. It may have been so; but let us not forget, that formerly there was an urgent and unprovided-for demand in all quarters for practitioners; and, even admit that the acquirements of some were more scanty than were to be wished, still the general result was, to explode ignorance and barbarism in all directions, and the basis of the present superstructure was forming. Whoever may be at the head of the veterinary institution cannot select from among those who come forward as pupils; but now the period of study is lengthened, and the examination to be undergone detailed and strict, and very properly; and I doubt not the inclination and feeling at the Veterinary College is to strictly adhere to the regulation in regard to a prolonged attendance; or, even if deemed advantageous to the profession, to extend the period as now fixed. This is the only practicable mode of keeping back candidates for the profession of unbeseeming qualifications. But at the present I will not further extend my observations; but conclude with remaining The Veterinarian's sincere admirer and well-wisher, a

V. S.

P——— B———, Scotland,
February 15, 1832.

REMARKS ON THE TREATMENT OF OPEN JOINTS.

By Mr. W. Simpson, *V. S.*

During my pupilage at the Veterinary College I was in the constant habit of witnessing cases of open joint treated in a manner that appeared to me peculiarly unscientific and unsuccessful:

in all probability it was assuming much importance on my part to stand in judgment upon the practice of those from whom I naturally hoped to obtain such instruction as would enable me, with satisfaction to my own conscience, to undertake the care of a valuable animal labouring under disease; but, at any rate, I will now lay a few remarks upon the subject before the public, and let them decide whether the impression I first received was correct or not. I never have, neither ever will I, indulge in detraction merely for the sake of gratifying the appetite for this vice which exists so largely in human nature: it is one of the meanest passions to which we are subject, feeding on the reputation of others, without adding any thing to our own. I hope, therefore, that those who are inclined to imagine that any of the expressions which I may use are to be attributed to ill-will and malevolence, will suspend their condemnation; for I can assure them that my object in making the few following observations on this point, is not to direct against any party the shafts of spleen, but to warn the veterinary pupil against, and to convince him of, the impropriety of a practice inculcated at the institution from which he expects to derive his knowledge, but which I unhesitatingly affirm, is far from being remarkable for the soundness of its practical doctrines, or the successful issue of the treatment adopted within its walls.

I fancy I hear some one exclaim against my presumption, in thus elevating myself into a Mentor, and in thus pitting myself, upon a practical subject, against such high authority as a teacher in the Veterinary College: but *n'importe;* I am not dazzled by the tinsel of a name—I never was destined to be "a puppet moved by wires in the hands of others"—I cannot suck in an untenable doctrine, because an influential man thinks fit to say

> "Sic volo, sic jubeo; stat pro ratione voluntas;"

"Thus I wish and order; my will stands in the place of reason." I will not renounce the evidence of my own senses—I will not compromise my opinion when it is supported by, or founded upon, facts as clear as the sun at noonday; consequently I have ever been accustomed to look for myself, bearing still in mind the aphorism of Horace,

> "Segnius irritant animos demissa per aurem,
> Quam quæ sunt oculis subjecta fidelibus;"

"The facts which are merely told, produce a cold impression, compared with that of those which are presented to the eye." Thus I was led to inquire a little into the causes which produced

this manifest ill success in the treatment of open joint which I witnessed at the Veterinary College, and my ideas on that subject I now offer to your readers.

In the first place, and in order that we may proceed in a systematic way, we will inquire what are the consequences of a wound into the cavity of a joint, what injurious effects are likely to arise therefrom, and what appears to be the most rational mode of everting those effects. Let us, for the sake of illustration, suppose that the capsular ligament of a joint, the knee for instance, has been penetrated, and that a communication is thus established between the cavity and the external atmosphere: the wound of itself is of trifling importance, and in a merely muscular part, would scarcely require notice; but here this inconsiderable affair is likely to give rise to a train of results of a perplexing and annoying nature. First, the synovia, which in a healthy condition of the parts is confined within a circumscribed cavity, for the express purpose of affording a smooth and glib surface for the play of the bones composing the joint, finds an exit through the aperture, and becomes wasted. In consequence of this wasting of synovia, the joint does not retain a sufficient quantity for the due and healthy performance of its functions; the delicate membrane, therefore, which covers the cartilaginous ends of the bones, suffers a certain degree of attrition, the continuation of which soon induces a state of inflammation. For a time, and before this inflammation increases to any great extent, an extra quantity of healthy synovia is secreted; but no long period will elapse before we have the common consequence of inflammation of a secretory organ, viz. a morbid secretion: thus, instead of synovia, a muco-purulent discharge makes its appearance: the inflammation pursues its course, the cartilages become ulcerated, and by-and-by coagulable lymph and bony accretions are thrown out, and anchylosis is the inevitable result. I have here hastily sketched the progress of a simple puncture into the cavity of a joint, when neglected or improperly attended to; but I have taken no note of the irritative or sympathetic fever which attends it, because it does not bear any direct reference to my present purpose: it is sufficient to notice, that in violent cases it is not an unfrequent occurrence for the poor animal to die from pure irritation produced by the pain attending inflammation of the ligamentous structure of a joint.

From the statement I have given, it appears evident, and I think it may be laid down as a principle in veterinary surgery, that our first endeavour (after the removal of any extraneous matter which may have insinuated itself into the joint) should be to close the cavity; to put a stop to the flow of synovia, and

confine it within the bounds which nature has marked out for it, and thus preserve a proper glibness for the motion of the bones, and prevent that attrition which is oftentimes productive of so much mischief. Now, what plan shall we pursue for the accomplishment of this primary object? How shall we best *block up* (the term, though vulgar, is expressive,) the canal which allows of the passage of the synovia? Various methods have been adopted with success—the actual cautery—stimulants to the external wound—adhesive straps—sutures—and a peculiar bandaging, introduced by Mr. Thomas Turner, of Croydon.

I shall not now stay to analyze the respective and comparative merits of these plans: they are all directed to the same end, viz. the closing of the cavity; but there is yet one mode of treatment upon which I wish to make a remark or two; I mean the application of digestive ointment, and continual warm fomentations.

We all know that the cavity of a joint presents an exception to the general rule of mucous membranes having an external outlet: a joint is circumscribed—it has no external outlet; yet the lining membrane possesses the peculiarities and properties of a mucous membrane, and consequently, under inflammation, is predisposed to take on the suppurative process. Now, is it desirable that we should induce this state of suppuration? Is it desirable that the healthy secretion of synovia should be changed into the morbid secretion of pus? Certainly not. Ought we not rather to use all our endeavours to ward off this alteration in the functions of the membrane, and to preserve it in such a state that synovia, and not pus, may be poured from its secerning vessels? Decidedly, yes. But let us suppose that it was our wish, and our most effectual method of combating the case, to encourage the process of suppuration; how should we best accomplish our object? Why, most certainly by the use of digestive ointment, fomentations, poultices, &c. This treatment is pursued at the Veterinary College. Not the slightest effort is there made to produce adhesive inflammation in the external wound, or to prevent the exit of the lubricating fluid; but every plan is brought into requisition that is any way likely to keep open the joint, and to induce a morbid secretion from the synovial membrane. But let us not confine ourselves to mere words. I will adduce "Ου γνωσις, αλλα πραξις;" "not the theory, but the practice." During a residence of fourteen months at the Veterinary College, I do not recall to mind one successful case of *decided* open joint. This is a broad assertion, and may appear somewhat bold and uncalled for on my part; but I happen to be one of those unfortunate individuals whose

tongue must give utterance to what the mind dictates, be it praise or be it blame; and I cannot but despise the man who is accustomed, "Spargere voces in vulgum ambiguas," to scatter half-formed hints amongst a gaping crowd, without daring to utter a palpable fact. But enough of this at present.

W. SIMPSON.

London, Feb. 17, 1832.

FRENCH VIEWS OF VETERINARY PRACTITIONERS.

A VETERINARIAN may be said to be a person who, after having studied the veterinary art, is authorised to practise it: in other words, to apply the knowledge he has obtained to the treatment of the diseases of animals.

Among the number of veterinarians, we meet with many well-informed men who do honour to their profession, at the same time that they merit universal esteem and confidence; while others are found ignorant—incapable of learning more, either from a defective groundwork in education, or from a want of taste or tact for the art and the candour to avow it. A worse class still (though, fortunately, their number is small), are those who debase their profession in the infamy they heap upon themselves. The veterinarian should eschew being a prey to that empiricism which defies all principles, and strips medical tact and genius of its advantages. That empiricism which confines him within a narrow inch of action; is no more than a cloak for ignorance and obstinacy, and renders its devotee incapable alike of effort or meditation; his mind inert and trammelled; and which is opposed to every thing assuming the appearance either of exertion, operation, or intelligence. To the mere routinist, observation is mute—the light of science shines in vain: he performs the same acts over and over again, embarking without guide upon a vast ocean abounding in rocks. Presumption is another fault the veterinarian should take care to defend himself against: he who knows every thing, whom no difficulties surprise, whom nothing whatever embarrasses, and to whom operations the most delicate are but as nothing, has gone no deeper than the bark of the tree; for, in truth, he knows *less* than any one else. It is vain for such a one to vaunt in terms of science and bombast, unintelligible to those to whom he may address them; and with equal vanity does he boast of the number and importance of his wonderful cures, or brag of his fame, or fatigue with an account of his exploits; he cheats himself, by fancying he has more knowledge than he really does or ever will

possess. On the other hand, take care not to give admission to that timidity which paralyses talents, tact, and acquirements, and is the cause of losing many a favourable opportunity and profiting by many a fortunate chance: such a feeling engenders surprise at the simplest occurrences, makes one afraid to act, afraid to express an opinion, or occasions the expression of it in a confused and embarrassed manner. From such as he ought to avoid or dispossess himself of, let us pass to those qualifications the veterinarian should cultivate.

Natural taste for the art—a sort of vocation should be inwardly felt by the man who devotes himself to the study and practice of the veterinary art: when such a disposition manifests itself, and the boy is of a robust and healthy constitution, his parents should consign him to the profession. A delicate puny youth, feeble in physical power, possesses not the power of casting and securing the large domestic animals, and mastering them, especially such as are unbroken or naturally untameable and vicious: indeed, such as these require not strength alone, but adroitness and tact in the subjugation of them. The work of the forge likewise requires physical strength, it being necessarily laborious; and skilfulness in such duties being much more necessary than is apt to be imagined, this point cannot be over insisted upon. The veterinary pupil should be well versed in his own language, not only that he may receive the full value of verbal instruction, but that he may understand the terms made use of, be able to arrange and digest his observations, take notes, &c. We live no longer in an age that reduces the veterinarian to a level with the lowest ranks of society: his communications should be with persons of sound judgment and of observation, in order that he may seize on every particle of information concerning any disease, and thereby be the better enabled to devise a method of cure. Prior to establishing himself in practice, he ought to have lived for some time with an old practitioner, to have seen a variety of cases, and thus, as it were, anticipate both time and experience, and be able to apply to *particulars* what he has been taught but in *generals*. In this manner he will acquire practical knowledge—that which the schools cannot afford him. With him, professional reputation will be earned by praiseworthy conduct, and not be cultivated for sordid pecuniary interest; he will despise charlatanry injustice, and the vile artifices and tricks of usurped fame: he will only shew ambition for that which is due to real merit, though it take long to obtain it, and will aspire to triumph only when he has surmounted every obstacle in his arduous course. That reputation alone is lasting which results from knowledge

and experience. If he will only take the trouble, at the commencement of his professional career, of noting down his observations, of registering every circumstance and symptom of the diseases he treats, very great advantages will accrue from it. In keeping a faithful record of what passes under his eye, successful and unsuccessful events will equally afford a something, not for him alone, but perhaps for science in general. It is to be desired that every veterinarian, even the experienced, whose circumstances permit it, had the opportunity of noting down, not merely his observations and particular remarks, but of writing a faithful history of the diseases he is called on to treat, and noting every thing he sees, and comparing such accounts with what has been observed in former times, or by any of his cotemporaries. Thus he would amass heaps of rich materials; and if every one did the same, a mine would be formed, out of which one might extract, with immense advantage, materials for a good system of nosology, a work still wanting to the veterinarian. The true veterinarian is he who, dedicating his whole life to the preservation of animals of use to man, makes the study and exercise of his profession his principal source of enjoyment and only occupation; who seeks those who know more than himself for information and advice, rather than for admirers; and whose only ambition is the acknowledgments of the person he has served, and the approbation of the small number of *savans* engaged in occupations like his own. Full of zeal for the science, it becomes his duty to advance it by every means in his power: anxious to become acquainted with all important discoveries, he will seek them with avidity, examine them without prejudice, and yield up his confidence in proportion to their apparent claims. Ever ready to welcome truth and repel error, he preserves in his mind that philosophical scepticism which to us appears to be the principle of all true science. Finally, the veterinarian should maintain a good understanding with his professional brethren. Reciprocal good feeling should excuse the commission of any accidental improprieties, and with the utmost regard for one another, they should seek occasions for the interchange of friendly communications. Not only should jealousy be banished from among them, but a scrupulous delicacy should ever operate, in every case and under every pretext, in preventing them from interfering with one another's practice.

The pupil, on leaving college, carries home with him a rich stock of theory, but little knowledge of real practice, and not sufficient insight into shoeing: indeed, some veterinarians disdain the forge, as if it were derogatory for them to pay attention to that which concerns them. This is a very great mistake;

the shoeing art is closely allied to veterinary surgery. Happy the practitioner who can use the shoeing instruments himself, so as to prevent a rude hand, nay, a hostile one, from doing the animal irreparable injury! Such practice does not make a blacksmith of him, but simply teaches a branch of the operative department of his art.

We are now going to touch a sensitive chord—that of the salary of the veterinarian. He is not a person descended from opulent family; he has but his profession to subsist upon. The major part of his possessions, if not all, and what his parents can afford to give him, having been consumed in his education, in his board and lodging, in books and instruments, and the remainder in establishing himself afterwards; all this entitles him in a peculiar manner to recompensation. He must not however on these accounts overrate his services, lest he do himself injury: rather let him shew himself disinterested towards the poor, and never exact more than his due from any that have means of paying, lest he indispose them towards him, forfeit their good opinion, give them reason to complain of him, and end in losing their custom altogether. Especially, let him eschew that shameful traffic which, unfortunately, we find carried on between some veterinarians, unworthy of their name, and certain druggists. The professional man who respects his own character, and is an honour to his profession so long as he practises it honourably, will need no hint to avoid, beyond all suspicion, such a dirty business; he will, if required, put his employer in possession of his prescriptions, and leave him to go to any druggist he pleases, by which he places himself beyond the reach of calumny, or of any intrigues his enemies may plot against him. Young practitioners, just emerged from college, who happen to commence their professional career by some fortunate cases, are apt to assume inordinate credit to themselves, and to think they cannot be too well paid for them, therefore charging even more than an M.D. would do in a like affair: this is a grave error on the part of a young beginner. It is only under circumstances when he has to deal with opulent people who possess very valuable studs, and when he comes to enjoy an established reputation, that he may venture to enhance his fee; and even in this case it is better to leave it to the employer himself to fix the *honorarium;* or to say nothing about it until the time seems expired when he ought to have noticed it. In all other cases, like the human surgeon, the veterinarian should mete his charges to the circumstances of his employer. Many established veterinarians are fond of engaging in contracts at so much per head (of cattle) per annum, or taking the whole;

and it is a mode of proceeding much to be approved of: besides ensuring the man an honest name who has devoted himself to the cares, fatigues, and occasional disgusts of a profession little respected, it is a plan possessing the advantage of setting aside all feeling of venality, and of permitting the repetition of visits without exciting any suspicion of dishonourable avidity. Thanks to the paternal views of government, to the protection and encouragement it holds forth to those engaged in useful pursuits, salaried veterinary surgeons have been appointed to the regiments of cavalry, and at every head-quarter of prefecture. The same appointment as in a regiment of cavalry has been made in several prefects; and we hope the plan will become general. It has the especial advantage of dispersing accredited veterinarians through the country, and of providing for them as they get established. The completion to this measure would be to prohibit farriers, and such as were not veterinarians, from attending to disease, or at least to confine their practice to the foot, although for the most part they are unequal even to that; not to admit such persons to be subpoenaed as witnesses, or as examiners of horses; to publish a list of the veterinarians in every county, with their residences; to prevent any man from practising an art of which he is ignorant, by imposing penalties upon him, and to institute repressive measures against charlatans who give themselves out to be magicians. Is it not truly deplorable to see such a herd of cow-leeches, farriers, and blacksmiths, setting up for being skilled in that of which they are grossly ignorant; without instruction, and with the most barefaced want of probity, speculating upon the credulity of the simple country people, by compromising the lives of those animals who contribute so much to their service; pursuing a practice equally ridiculous and inhuman; bleeding, whether right or wrong; weighing out, as though it were gold, some pretended specific, some secret remedy, often one pernicious to the patient; administering as an all-curing panacea some universal drench, a cunning composition from numberless substances of entirely different properties; and, what is still more lamentable, to see persons of this description seducing and misleading the public, taking public confidence captive, and enabled to make their fortunes to the prejudice of veterinarians? Hence it is that many veterinarians, and those from among the best informed, finding themselves blended in practice with such characters as these, discouraged by base proposals, humiliating comparisons, and often an unjust preference; and seeing nothing to look forward to but contrarieties and rebuffing vexations, quit a profession that has disappointed their hopes, that no longer fulfils their objects, and

in which they find neither comfort nor consideration. But little stands against this account, there being but few places where individuals appreciate the merit of scientific veterinary men, and do not require of them any thing impossible, while they duly recompense their talents, labours, and efforts. Veterinarians in the army have in this respect a decided advantage over others, since the treatment of troop-horses is no longer abandoned to one of the farriers, who was entitled the farrier-major. During the first ten years of service, the senior regimental veterinarian in the royal guard receives 1500 francs (£62 10*s.*) per annum; the junior 1050 francs (£43 15*s.*): in regiments of the line, the senior receives 1200 francs (£50); the junior 800 (£33 6*s.* 8*d.*); supernumeraries are treated as quarter-masters. After ten years' servitude these salaries are raised, respectively, to 1800 (£75), and 1350 francs (£56 5*s.*) in the guards; and to 1200 (£50), and 1000 francs (£41 13*s.* 4*d.*) in the line. These are highly praiseworthy regulations: they insure a respectable maintenance to the object of them, especially when that which he may make by other practice, together with some regimental allowances, are added. Nothing (on the score of emolument) remains to be desired for them, but the privilege of retirement after thirty years' service. But in respect of rank, it is to be regretted that they are upon a level with quarter-masters, the same as the collar-maker and the tailor, and other artificers, who make no part of the *état-major:* this is not giving consideration enough to an arduous and estimable profession.

Hurtrel d'Arboval.

THE VETERINARIAN, MARCH 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

THE REPORT OF THE PROCEEDINGS OF THE ROYAL VETERINARY SCHOOL AT LYONS DURING THE SESSION OF THE YEAR 1831.

[Concluded.]

8. Thirty-one dogs, attacked by the disease known under the name of madness, both dumb madness and the ferocious varieties, were brought to us in the course of this year. The months in which we received most of these animals were those of December, March, and July; and most of all in this last month.

Nevertheless, this coincidence of the appearance of rabies with the highest degree of heat at Lyons, is not constant; we have frequently observed this disease to be very prevalent in the spring and autumn. Thus, as in staggers, we find in the number of predisposing causes of madness, moisture, accompanied by heat and cold, and sudden variations of temperature, as occasional causes. Are the mucous membranes of the digestive and respiratory passages always the seat of that irritation which afterwards disturbs the cerebral functions, when these so often do not commence the series of disorders that constitute this disease?

If the stomach of the horses attacked by abdominal staggers is frequently found distended with undigested food, so we as often find in the stomach of mad dogs indigestible substances which the animal had devoured in the agony that he endured. Thus we see, with regard to these two affections, certain causes, acting most particularly on the cutaneous and gastric surfaces, and, in the last, principally on the pulmonary surface; for the affection of the brain, in both cases, appears to us to be consecutive to those of the mucous tissue.

Whatever truth may be in these remarks, it is unfortunately an established fact, that medicine has no power over this formidable disorder. Every attempt which has been made to cure it has been without satisfactory result; and with regard to this, though we have made only two or three trials of the means proposed by Dr. Chardon (immersion in water until the animal is nearly suffocated), we are tempted to place that among the thousand other fallacious measures which have been extolled as cures for rabies.

Nevertheless, what art has not yet achieved, nature sometimes produces, with regard to that form of the disease called dumb madness. We have twice seen this disease cured spontaneously. A dog was brought to our infirmary on the 17th of last July. He was an English bull-dog, of middle size. For three days he did not eat; the tone of his voice had sustained that alteration peculiar to this disease; the mouth was open, and a little fœtid slaver ran from it; his looks were ferocious, and yet the animal did not appear inclined to bite. The hind parts were re-

markably weakened, and constipation was excessive. Nothing was given him at first but barley-water. On the next day, clysters were administered with considerable precaution, which brought away pieces of fæcal matter of an oval shape, hard, red-brown, and fœtid. Three days passed without the dog having once voluntarily changed his position. He lay in one corner of his kennel, his head resting on the ground. He was moved several times by pulling at his chain, in order to be satisfied that his hind extremities were paralyzed. His countenance remained gloomy and ferocious. On the 21st, nearly five days after he was brought to us, he began to raise his head, and eat some soup with avidity, and also some pieces of meat that were thrown to him. The next day he wagged his tail when the pupil who had the care of him caressed him; he placed himself in a more natural position; and from this moment to the 25th his strength and spirits returned. He was then sent back to his master, who attentively watched him, but did not afterwards perceive any sign of the disease.

9. Fractures are more frequent in dogs than in any other species of domestic animals; and we have greater chance of a favourable result than in larger quadrupeds; and unsuccessful cases are far less numerous.

We shall not exaggerate by saying, that the number of fractures which we have reduced in dogs and cats is not less than fifty. All the animals were not left at the infirmary: most of them were brought to the school for the proper bandages to be applied, and then taken home by their owners, and not always sent again.

The number of animals with fractures, under one year old, compared with those of a more advanced age, were at least three to one. In the youngest, these fractures were the consequence of falls from some little elevation, such as a chair or a table. It is not unusual to find in these subjects, simple breaking off of the articular epiphysis.

These fractures are almost always situated on the second or third division of the extremities; that is to say, in the femur or the tibia; the humerus, or the arm beneath: fractures of the carpus, and the tarsus beneath, are rare. One fracture of the pelvic

region was brought to us this year. The whole pelvis was in a manner crushed: the hind extremities of this dog were motionless, and the rectum and the bladder were also powerless. After the cure, which was accomplished in about seventy-five days, a sensible contraction of the croup was observable, and the hind extremities were nearer to each other than before the accident. One of them was drawn forward, and the ischium of the opposite side thrust backward nearly two inches.

The loins of this animal were evidently tender and painful at the time of his entrance into our infirmary; leeches were repeatedly applied, and the part then covered with a linseed-meal poultice; camphorated oil, with opium, was subsequently used as an embrocation; after this stimulating frictions were used; and, lastly, the moxa was had recourse to.

Most of the fractures, both in dogs and cats, were transversal, and the edges of the bones were not displaced. The reduction of such is easy; but it is not thus with compound fractures.

The treatment consists of straight pieces of pasteboard, placed over soft pledgets of lint wetted with camphorated spirit, and a bandage rolled over all; the greatest care being taken that the pressure shall be equable. It is very seldom that one of these dressings is sufficient, or will stay in its place during the whole fifteen or twenty days which are requisite to form a sufficiently bony union; and it is necessary to replace it when any part exhales a fœtid odour.

When the unmanageableness of the dog, or his propensity to gnaw his bandage, will not allow us to keep it on a sufficient space of time, we limit ourselves to producing, by means of irritating frictions, an inflammatory tumefaction in the fleshy parts which surround the fracture; and we abandon the treatment to nature, and the cure is equally perfect, although frequently longer in being accomplished.

10. Our pupils are daily sent for to various parts of the surrounding country, to assist cows in difficult parturition; and we may say with truth, that they have in this way rendered great service to agriculturists. If their attempts have not always been attended by success, the farmers ought, in most cases, to attribute their losses to the blind confidence which they had placed in

the men without education or talent, and to whom they had recourse in the first place.

In our infirmaries we every year give assistance to many bitches and cats in difficult parturition. It frequently happens, that when these animals are confided to our care, their strength is quite exhausted, the little ones dead, and the vagina and uterus inflamed. We have this year obtained very satisfactory effects from the use of the ergot of rye, given in doses of half a grain and a grain, when the womb is found to be in that inert state which follows prolonged and fruitless efforts to expel the fœtus. This medicine will not have the same salutary efficacy if inflammation of the womb exists. In this case the remedy will only aggravate the evil, and hasten the death of the patient.

We agree with "Candidus," that we should yield the place of honour in our Journal to these useful records of the Transactions of the Schools. How gladly should we do so with regard to a school nearer home.—EDITORS.

To Mr. Sumner we return our cordial thanks for the frank and straightforward exposition of his treatment of several of the diseases of cattle. If every practitioner was actuated by the same laudable spirit, our profession would indeed rapidly progress in improvement. To his inquiry respecting the power that cattle have been supposed to possess of directing their food or medicine into which of the four stomachs they please, we will endeavour to reply in as brief a manner as possible. The structure of the stomachs of ruminants will be considered more at length in Mr. Youatt's lectures on the digestive system.

The œsophagus of cattle does not terminate in either of the stomachs, but in a curiously formed canal, the roof and the sides of which are closed, and possess considerable muscular power, and the floor of which consists of two round muscular pillars, lying in approximation with, but separate from, each other: so that in its quiescent state this canal is perfect, and the aliment may be conveyed along it; but under certain circumstances these

pillars separate, and the food tumbles through the aperture. This canal runs along, and thus occasionally opens into, the roof of the rumen or paunch.

We will suppose a pellet of food that has undergone the first process of mastication—only half ground, and somewhat hard—passing into the œsophagus. Acted upon and propelled down the gullet by the strong muscles of that tube, the velocity with which it descends and its own weight give it a momentum sufficient to separate or break through these pillars and enter the paunch. The will of the animal may be somewhat concerned with this, or rather he acquires the habit of unconsciously contracting the muscles of the gullet with sufficient force to give the pellet the required momentum. We see, then, that by giving medicine in the form of a ball of some consistence, we could send it into the rumen, if we wished so to do; but that wish, probably, would rarely or never be formed.

We will next suppose, that after awhile the food has gone the round of the different compartments of the paunch, and has been projected over the intermediate ledge or valve, and entered the reticulum or second stomach, and has there been moulded again into the form of a pellet, and been impregnated with a viscid fluid, and passed again up the œsophagus, and has undergone a second mastication, and from the mingled cutting and grinding action of the molar teeth of the ruminant has been reduced to a soft pulpy mass. The tongue a third time forms it into a pellet, and it is conveyed through the pharynx, and once more descends the gullet. It is not necessary now that this tube should act so strongly; or rather, it cannot do so on this softened, pultaceous mass, which when it arrives at the bottom has not sufficient momentum to break through these bands or pillars, but, continuing to be impelled forward by the muscles of this canal at the base of the œsophagus, passes on as through a perfect tube, and enters the third stomach or manyplus; and the floor of the canal (but now inseparable, for these bands reach not so far) being continued along the base of this stomach, the fluid part of the food, or that which has been sufficiently comminuted to undergo the process of digestion (which has not yet commenced), flows on and enters the abomasum or true stomach, that alone which is

still hard and fibrous, being detained in the manyplus to be exposed to trituration between the roughened leaves of that stomach, or, as it were, a third mastication.

How far the will of the animal may be here concerned we cannot say; the whole seems a kind of natural process, and the animal unconsciously adapts the muscular power of the œsophagus and the œsophagean canal to the accomplishment of this second purpose, the passage of the food no longer into the first but into the fourth stomach. The muscular pillars forming the floor of this canal may at the same time contract, and be held in firmer apposition to each other, so that the food shall not break through and enter the rumen.

What is true of the pultaceous mass which had undergone the process of rumination, is still more applicable to the fluid part of the aliment that glides down, little assisted or propelled by the muscles of the œsophagus: it falls with less momentum, the fleshy pillars remain in contact, and the liquid flows on through the manyplus, and into the abomasum.

This accounts for the circumstance mentioned by Mr. Sumner, "that the medicine which he gave had not entered the first, second, or third stomach, as the meat in them was of a green colour, and rather soft, but the contents of the fourth was the same colour as the medicine, and very thin." Here again no one can affirm how much or how little the will of the animal is concerned. Very little indeed we are inclined to imagine, or perhaps not at all. Yet we can believe that by a forcible gulp, or strong action of the œsophagean muscles, the fleshy bands of the floor of its continuation may be relaxed, a portion of fluid may break through the floor, and enter the rumen. There is occasionally more fluid in the rumen than could be extracted from the grassy food with which it is filled. As for the food or medicine being directed into what stomach the animal pleases, this is quite erroneous, although Dr. Monro's is a great name. Our correspondent, however, will very easily collect, from what has been just stated, an answer to his question, as to what is to be done with regard to sending medicine into these stomachs. Whatever may be the case with the animal, he at least has the power of sending his medicine where he pleases. A ball will go

into the rumen, and a fluid slowly poured down will flow on into the abomasum; nay he can, if he wishes, send a fluid into the rumen. That newly-invented, and not sufficiently appreciated instrument, the stomach pump, will effect every thing for him. He may pass the tube fairly down the œsophagus, and thrust it through this singular floor of the canal, and pour medicine if he likes into it, if he is not afraid of producing nausea and the cessation of rumination by the mixture of a nauseous drug with the food that is to be masticated afresh; or he may pump in his warm water, or any other bland fluid, until vomition is excited, and the fermenting and acescent mass of food contained in it is discharged.

On the other hand, he may introduce the pipe but a little way down the œsophagus, and pump in more slowly, and the water will flow on over the floor of the canal, and into the manyplus, and wash out a portion of the hardened mass between its leaves; for not only, as Mr. Sumner says, "when the third stomach is the seat of disease, the excrement is in a dry state," but the dryness, amounting to a hardened, baked state, as it were, of the fibrous matter collected between the leaves of the manyplus, is either the cause or the consequence, but most certainly the accompaniment of disease of this viscus. The operator, we say, may pump on until he has softened or washed out a portion at least of this hardened mass, by which the action of the manyplus is paralysed; and the abomasum gradually becoming filled with the fluid, some regurgitation will ensue, and some of the water will return into and fill the manyplus, and fully accomplish the desired object, the removal of this indurated mass.

Possibly we have, for the present, sufficiently answered Mr. Sumner's questions.

We were right glad to recognize in the communication of V. S. of P— B— the hand-writing of a valued correspondent, otherwise we should have been compelled, and most unwillingly, to postpone at least his observations on the paper of W. J. G. Without giving, and indeed which we are not at present called upon to give, an opinion as to the matter in dispute between

these gentlemen, both of whom we much esteem, we may at least say, that there was nothing in the temper and manner with which V. S. handled his subject, that ought to have made him desirous to conceal his name from us or from any one.

We were, however, very glad that we could insert his paper without the violation of a rule, from which, and we repeat it for the last time, nothing shall induce us to deviate. *We will know our correspondents.* On a scientific or practical subject it is highly desirable that we should, otherwise what voucher have we for the accuracy of any statement that may be made? On subjects such as that which have employed the pens of these two gentlemen it is imperatively necessary. No one shall make a personal attack to which (with regard to us at least) he is afraid or ashamed to affix his name. Therefore, let us not be misunderstood;—while, in the language of V. S., we consider THE VETERINARIAN as "a general storehouse (why is it not more used?) and unbiassed disseminator of the opinions and views of all, and will neither reject nor decline to register those of any, which are neither too personally vehement in expression nor notoriously erroneous," we do also consider ourselves so far "responsible for the bearings or complexion of conflicting sentiments"—we do consider ourselves so far and so strictly bound to see fair play, that *we will know every combatant.*

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—*Horace.*

Traité Elémentaire de Matière Médicale et Pharmacologie Vétérinaire: par M. Moiroud. Paris, 1831.

[Continued from vol. iv, p. 594.]

SPECIAL EXCITANTS.

MANY of these drugs seem to be entitled to the name of excitants, on account of a mixed action, *sui generis,* and sometimes even by an action diametrically opposite to that which this name imports; such are certain narcotics and some laxatives: these,

however, are imperfections from which the most methodical classifications are not always exempt.

First Class of Special Excitants.

Purgatives and Laxatives.

This title, which sufficiently expresses the primitive and most constant and marked effects of these agents, does not prejudge the intimate action which they exercise on the living surface with which they come in contact. Each of the substances which will pass in review seems to have an action peculiar to itself, and different more or less from that of all others. We must, however, unite under some common designating terms those whose effects are most analogous: thus we divide them into *laxatives* and *cathartics*, and the latter into *mild (minoratifs)*, and *drastic* or strong.

The difference of action between the mildest laxatives and the most drastic medicines is sufficiently marked, but the line of demarcation between many of the intermediate substances can be with difficulty drawn. We can also produce with the same substance effects exceedingly different, according to the dose and the circumstances under which it is administered, yet still the peculiar character of each drug being retained; for the drastic will irritate, even in small doses, and the laxatives, in a large dose, will produce abundant evacuations without irritation.

The purgatives rouse the sensibility of the mucous membrane with which they come in contact: they produce redness and turgescence of the membrane, development of the capillary vessels, and increased exhalation and secretion. The irritation is soon propagated to the muscular tunic, which accelerates the peristaltic motion, and causes a speedier and fuller evacuation of the contents of the intestinal tube. This influence extends to the liver and the pancreas, which pour out more abundantly their peculiar secretions.

These phenomena, however, although connected with the action of almost every purgative, vary in each. In some the intestinal and hepatic secretions are abundant, but there is not much increased peristaltic motion, nor any copious evacuation of solid matter; in others there is little discharge of bile or fluid, yet the dejections are frequent and abundant. Some purgatives act on the whole extent of the intestinal canal; others confine their principal influence to one portion or part. Some affect the small intestines chiefly; others almost exclusively the colon and rectum. Some drugs, exceedingly irritating and dangerous, and that frequently produce intense inflammation of the

mucous coat of the intestines, cause only a slight purging; others, that are rarely known to inflame, provoke abundant evacuations.

The effect of purgatives, therefore, cannot be said to be assimilated with those of ordinary irritants; the first seem principally to exert their influence on the contractility of the intestinal canal; the others excite its sensibility. The ordinary irritants begin to develope their agency on the stomach; the special excitants, the cathartics, develope them completely in the intestines alone. The stomach is not, however, passive under the influence of the latter; and it even sympathises with the impression of those that never entered it, but were administered by injection, and some of the laxatives act primarily and principally on the stomach.

Soon after the administration of a purgative, animals generally become depressed and languid, off their feed, yawn (the horse), shiver, are evidently nauseated, vomit (the dog). The skin is alternately hot and cold; the pulse, at first small, concentrated, irregular, sometimes intermittent, acquires force and frequency: eructations follow—sometimes colicky pains—swelling of the abdomen; and, at length, after a variable period of time, the alvine dejections appear more or less abundant.

At the same time, the absorbents take up some of the minuter particles of the medicament, and which enter into the circulation, and escape through the excretory ducts. They have been detected in the blood; and the best means of purging a young animal is through the medium of the mother.

Herbivorous animals, on account of their organic structure and their peculiar idiosyncracies, are more difficult to purge, and take a longer time to effect the purpose than carnivorous ones. It is not until twenty-four or thirty-six or forty-eight hours have passed, that the former can often be purged; the effect is produced in the latter by the same medicines in six or eight hours, or less. Young animals are much more easily purged than old ones.

The number of the evacuations varies considerably, depending on the character of the matters discharged, and their consistence, the quantity of intestinal mucus, or the fluids of the absorbent vessels with which they may be mixed. To this first series of phenomena others succeed not less remarkable. The digestive tube, freed from the foreign matter which was accumulated in it, and its vital properties newly modified, takes on a new action, confined at first to its own proper absorbent system, but soon diffused over the whole frame. The respiratory and circulatory processes are moderated, and made more regular, whether it be

by the removal of the most frequent source of constitutional irritation, an accumulation of fæcal matter, or whether it is to be traced to the augmented secretion from the intestinal vessels.

Another important effect follows, which is a revulsion of the blood, which is determined with less power to the head and extremities, and more confined to the centre of the frame. It is on account of these effects that purgatives may sometimes be considered as tonics, sometimes as having a debilitating effect, and in other cases acting as revulsives.

It is evident from this that they are useful in a great variety of maladies, as dropsy of the abdomen or cellular tissue, chronic affections of the skin or eyes, vertigo, worms, colic, and some catarrhal complaints. They are also exceedingly beneficial in acute inflammations, by getting rid of irritation from one part of the frame; but in these cases the mildest purgatives must be administered, for the drastic ones would be dangerous, on account of their irritating properties. Acute inflammations of the intestinal canal imperiously counter-indicate the use of drastic purgatives.

When the purgative effect is too violent, or too much prolonged, whether because such medicines were really counter-indicated, or given in too great a dose, *superpurgation* is said to be induced. The fæcal matter is then often evacuated with pain, and mingled with streaks of blood. In this case we must have recourse to emollients, opiates, and sometimes to the most powerful sedatives.

There are few medicines the administration of which require so much precaution as purgatives. The patient should be prepared by peculiar food (mashes), and sometimes by emollient clysters; he should be kept moderately warm, in a dry situation, and gentle exercise should be used. The dose, and the mode of administration, should be regulated by the climate, the season, and the age and constitution of the animal.

To the ruminant they should be given in a liquid or pultaceous form, that may pass directly into the true stomach. If they penetrate into the rumen, they will remain there without producing their intended effect, on account of the enormous mass of food with which they will be mingled, and the little sensibility of the membrane of that reservoir.

In spite of all our precautions, however, nothing is so uncertain as the effect of a purgative; for the most drastic and irritating will sometimes produce very slight evacuation, although they will sadly exhaust the patient, while some laxatives will provoke repeated and copious dejections without exhaustion.

Although some of these medicines are termed *laxative*, their mode of action bears no resemblance to that of emollients. Their

immediate effect on the membrane of the intestines being stimulating rather than depressing, they quicken the peristaltic motion of the bowels without increasing the intestinal secretions, yet there is no marked activity of the absorbent system, and no decided phenomena of revlusion: thus the laxatives are principally employed as simple evacuants, and under that title they are infinitely preferable to the drastic purgatives in any disease attended by considerable inflammation, the intensity of which may be increased by the irritation of the physic.

Purgatives drawn from the Mineral Kingdom.

Sulphate of Soda.—This salt is a mild purgative, and of frequent use in veterinary practice on account of its little price and the convenient form under which it may be administered. To cattle it is given alone, or combined with vegetable purgatives, in doses of from four to twelve ounces.

It has been recommended in very small doses for chronic diseases of the skin: for it has been imagined that, by giving new activity to the exhaling vessels of the mucous membrane of the intestines, and to the urinary apparatus, it may produce a kind of salutary revulsion. It has, however, no especial influence on the capillary system generally.

Sulphate of Potash.—This substance possesses nearly the same properties as the preceding, but it is seldom employed, because it is dearer; and, on account of its more sparing solubility, it cannot be so conveniently administered.

Sulphate of Magnesia.—This differs little in medicinal effect from the sulphate of soda, except that the latter acts more decidedly on the urinary organs. It is given in the same doses, and in the same manner.

Magnesia.—Administered in doses of six or eight ounces, this is a mild purgative, but it is rarely employed for this purpose by veterinarians. It is ordinarily given to neutralise any acid that may be suspected to exist in the stomach or intestines: on this account it is useful in tympanitis and diarrhœa. The dose for the horse and the ox varies from three drachms to three ounces; to the colt and the calf it is given in doses of two drachms, either incorporated with honey, or suspended in some mucilage.

Tartrate of Potash.—This is a very mild purgative, but as it is somewhat dearer than the bi-tartrate, it is seldom used.

Bi-tartrate of Potash *(Cream of Tartar)*.—Administered in small doses (two ounces), it acts as a cooling medicine, and a diuretic; in triple or quadruple doses it is a mild purga-

tive. In this last character, however, it is very uncertain, and particularly with regard to cattle, and must often be given on several successive days, in order to produce the intended effect. Its diuretic properties, however, combined with its purgative, render it valuable in dropsy, anasarca, and even during the course of many inflammatory complaints. It is dissolved in a sufficient quantity of water for a drink, or in the usual beverage of the animal.

Tartrate of Potash and Soda (*Rochelle Salts*).—This possesses the same cathartic properties as the preceding, and is administered in the same dose, but is not so valuable for its cooling or diuretic effect.

Purgatives from the Vegetable Kingdom.

These are usually more acrid and irritating than the saline purgatives, and some of the most violent drastic medicines are of vegetable origin.

Senna.—This is a cathartic purgative, frequently employed, but generally in combination. To the horse it must be given in doses of five or six ounces, but then it irritates the intestinal canal, and produces colic and tympanitis. On these accounts the doses formerly given have been diminished, and it has been given in quantities from half an ounce to two ounces, associated with sulphate of magnesia, aloes, jalap, or manna. It assists the action of these medicines; its own influence being principally confined to increasing the contractility of the intestines.

Senna is taken into the circulation, and often gives renewed activity to the urinary secretion. It is generally given in the form of infusion; boiling will lessen or destroy its purgative effect. Sometimes it has been powdered and given in the form of ball, but it is less efficacious, and apt to disorder the stomach.

Buckthorn.—The berries of this plant possess considerable purgative power. They are seldom, however, employed for herbivorous animals, but are in frequent usage to purge the carnivora, and especially the dog. The pulp or expressed juice is given in doses of from two to four drachms, or the syrup in doses from two to three ounces. It may undoubtedly be associated with advantage with other purgatives for the larger animals.

Rhubarb.—The most esteemed is the Muscovy rhubarb; next in estimation is that which is imported from China, and that which is cultivated in Europe is regarded as inferior. Its peculiar odour is weaker, and its taste less bitter. It is both

purgative and tonic, according to the dose in which it is employed, or the state of the animal to which it is administered. On the horse it acts essentially as a tonic, and seems to concentrate its action on the stomach, the digestive power of which it increases. On the carnivora it produces the same effect, if given in small doses, as half a drachm; but if exhibited in larger doses, it will produce all the phenomena of purgation; while it may be given to the horse and the ox in doses even of six ounces, without producing the slightest purgative effect. It has in very large doses given a yellow colour to the urine, and which becomes red by the addition of potash.

Extracts.

Different Diseases followed or accompanied by Amaurosis.

By M. Riss.

[Memoirs of the French Royal and Central Society of Agriculture.]

"Amaurosis (gutta serena)," says M. Samson, "may be either *idiopathic*, that is to say, depending only on some lesion of the retina; *symptomatic*, when it depends only on some alteration of the optic nerve, or of that part of the brain on which the vision depends; or *sympathetic*, that is to say, dependent on organic lesions, which have no connexion by continuity with the organs of vision."

I shall not endeavour to explain the connexion of the following different lesions with the functional disorders which they produce; that which I now propose to do is to relate some cases which I have collected on this subject, and which, I think, will furnish important materials towards a history of Amaurosis.

Stomach Staggers, followed by Amaurosis.

CASE I.

September 22, 1824.—A gelding nine or ten years old, in tolerably good condition, belonging to M. B., miller, at Saint Mihiel. This horse had considerable cough for some time, and his master had been advised to give him a quarter of a bushel of roasted barley every morning as hot as possible. This food made the animal slightly ill the first day that he ate it; but, on the second day, the servant having given him a half-bushel, the horse, a naturally voracious one, devoured it in a very short time.

An hour afterwards he became dull, and had shivering fits, which were succeeded by violent colic. It was then that they sent for me.

On my arrival in the morning the whole of the body was covered with perspiration; the ears and extremities were cold; the animal rolled convulsively about, got up, and fell down again like a dead weight; stretched out his neck; the pulse was small and scarcely perceptible, &c. I ordered a purgative drink composed of an ounce of aloes, a drachm of emetic tartar, and a pound of honey, to be dissolved in three bottles of warm water and given in two doses; embrocations of warm water, slightly saline, were rubbed under the belly.

Towards four or five o'clock in the evening the cholicky spasms, which had been almost incessant, ceased; the pulse rose, and the night was passed tolerably quietly, but there was no evacuation.

On the 23d the cholic had not returned, but the horse still pressed his muzzle against the bottom of the manger, and his forehead violently against the wall, but without any spasms: the skin was burning, especially about the head; the respiration was difficult; the pulse full and oppressed. He had lost both hearing and sight. Eight pounds of blood were taken from the jugular, cooling applications were applied to the head, and also fomentations. He was bled again at two o'clock in the afternoon and at eight in the evening.

On the morning of the 24th he was sensibly better; he had had during the night copious dejections of urine, and half-liquid excrements: the pulse was not so full, and the temperature of the skin was diminished. (The cooling applications were continued, also the fomentations.)

The intensity of the symptoms continued to diminish until the 2d of January; and at this period we might have regarded the horse as completely cured, if he had recovered his sight; but his pupils were dilated, and did not contract under the influence of quick and strong light, and the eye was perfectly transparent: in a word, there was positive amaurosis. As soon as I perceived this, I applied two blisters on the cheeks, and ordered laxative drinks. At the end of eight days the blisters were replaced by setons in the neck, and the laxative drinks continued. Towards the thirteenth day of this treatment the sight began to return: it was completely restored on the twentieth day.

CASE II.

September 8, 1825.—A seven-year old draught horse, belonging to M. Henri, proprietor of La Croix (Meuse).

This animal, who had fed for some time entirely on dried trefoil and lucerne, had eaten during the last eight days a larger quantity than usual. At the time of my arrival he had all the symptoms which characterised stomach staggers in the preceding subject. The same means were employed to combat the disease, and were followed by the same results.

On the 20th he was considered to be cured; but on the 22d, on taking him out for exercise, we perceived that he had lost his sight, although the eyes did not appear to be diseased. Being sent for to examine this case, which appeared so very extraordinary, I immediately perceived that the horse had amaurosis. I made use of all the remedies which had succeeded so well in the preceding case: but this time I was less successful, and notwithstanding all my efforts, the horse *remained blind.*

Amaurosis following hæmorrhage from the large testicular artery, after castration.

22d of May, 1824, *at three o'clock in the afternoon.*—A colt of three years and a half old, of a middle size and a good constitution, belonging to M. B., merchant, at Brasseite (Meuse).

Towards eight or nine o'clock in the morning the operation of castration by the cautery had been performed on this horse by a travelling gelder. At eleven o'clock the proprietor perceived that a few drops of blood fell from the incisions made into the scrotum, and which increased every moment; and to such a degree, that when I arrived I found a great quantity in the place which the colt occupied. The blood continued to flow; the animal was weak and staggering, his respiration accelerated, and the heavings of the flanks jerking; the pulse was small, and scarcely perceptible; the eyes fixed, and the eyelids immoveable.

I caused the patient to be thrown and secured, as if for the operation of castration; I then sought for the cord, and succeeded, not without difficulty, in finding and tying it. To make it more safe, I afterwards stopped up the wound with a pledget of tow, which I kept in its situation by sutures passing through the scrotum. The hæmorrhage had taken place on the right side only. When the animal was raised, warm sugared wine was given him to sustain his exhausted strength; he was then well covered, and put under a restorative (*analeptique*) regimen.

After some time the wounds of the scrotum became tolerably well healed, and the colt recovered his appetite and vigour; but his sight was gone: amaurosis was established, which resisted every treatment we could adopt.

Amaurosis occasioned by suppression of milk.

The 15*th of September*, 1824, an eight year old mare, belonging to M. Bra—, merchant, at La Croix (Meuse).

This mare, who suckled a colt of three weeks old, was taken out about eight o'clock in the morning, and did not return until nearly four o'clock in the afternoon. As she had been driven very hard, and was very much heated, she was put into the stable and well covered, but they abstained from giving her any thing to drink until she was cooler. A few moments however after they had left her, this animal, whose teats were gorged with milk, escaped and ran to drink at a mill-pond, to which she was accustomed to go. Having returned to the stable, she was seized with shiverings and then slight colic pains, which lasted a little while. The next day the teats were swelled, hard, and painful, and there was an enlargement under the belly which extended from the udder to the chest: the animal looked dull, her head hung down, and she would not eat. They tried to milk her, but the milk came with difficulty, and had the colour and consistence of pus. The persons who had the care of her rubbed the swelling with emollient lotions, and administered clysters of a decoction of mallows, and gave her only chaff and white water. About four o'clock in the afternoon the patient appeared more lively, and began to eat: the udder, although still hard, was not so painful; the swelling was diminished; but it was perceived that the sight was singularly imperfect, although the eyes appeared very clear.

On the next day the swelling under the belly had quite subsided; the teats were no longer hard or painful; they were flabby, and gave no milk. The sight was completely gone. It was then that I was called in. The milk was dried up, and the teats contained only a little serous fluid, so that they were compelled to wean the colt. As for the eyes, they were affected with an amaurosis, against which all the efforts of art were fruitless.

Amaurosis following an apoplectic fit.

March 26*th*, 1825.—A two-year old colt, in good condition, belonging to M. T—, of Heudicourt (Meuse).

I arrived about nine o'clock in the morning, and found the colt lying on his right side, almost motionless, in which position he had remained nearly four hours, without power to raise himself: the respiration was laborious, the nostrils dilated, the pituitary membrane of a deep red colour, and gorged with blood; the traces of blood round the wings of the nose shewed that there had been a nasal hæmorrhage a very little while before. There was laborious heaving of the flanks, and the whole surface of the body was very hot; there were partial sweats on

the flanks, the chest, and about the eyes, which were fixed, and the pupils dilated; the eyelids were immoveable; the sight and the hearing completely gone; the pulse was full and hard. His owner told me that, about four-and-twenty hours before my arrival, the animal had begun to lose his appetite, and to hang his head below the manger, and had fallen into a state of stupefaction which gradually increased: the flanks were agitated, the temperature of the body augmented; the eyes became more and more red and injected; and at length the colt fell down as if he had been struck by a thunderbolt, and bled for some time at both nostrils.

From these symptoms and appearances I could not be mistaken in supposing it to be a violent cerebral congestion, or probably apoplexy. I took four pounds of blood from the temporal artery; amputated two joints of the tail, which I allowed to bleed freely; poured cold water and vinegar on the top of the head; gave purgative drinks, composed of half an ounce of aloes, two drachms of emetic tartar, and a pound of honey, dissolved in two bottles of warm water, administered in two doses, at the interval of an hour between each. Clysters of warm water, slightly saline, were given; the extremities were frequently and well rubbed, and the colt warmly covered. At one o'clock in the afternoon he began to purge; the animal, after several attempts, had raised his head from the litter, and appeared a little better. Six pounds of blood were again taken from the jugular, and the same treatment pursued. At six o'clock he was sensibly better; he had had several more liquid evacuations: the animal lay quietly for a considerable time, and the pulse was not quite so hard.

The 27th I was informed that the purging had continued during the night. The patient was up, and supported himself tolerably, but he held his head low. The respiration was less laborious; the artery was softer, and the flanks almost calm. Nevertheless, the eyes and eyelids were in the same state, and the humours of the globe of the eye were slightly opaque. Cold applications were continued, also purgative drinks and clysters; gruel with nitre was given, and two setons were inserted in the thighs. This treatment was continued for several days, and in the end was attended by a good result: the colt recovered his health and his vigour; but the amaurosis continued, and all attempts to get rid of it were futile.

Temporary Amaurosis during Gestation.

CASE I.

28th of April, 1829.—A mare of about nine years old, in

good condition, and in an advanced state of pregnancy, belonging to M. Herb—.

I was sent for to examine her sight, which for some time had appeared to be lost, although the eyes preserved their transparency and brightness. I immediately knew it to be perfect amaurosis. A blister was put on each cheek, the suppuration of which was kept up until the 10th of May; and the eyes were frequently bathed with lotions composed of an infusion of white elder flowers and extract of lead. These means not having produced any amelioration, and the time of parturition being very near, I advised her master to suspend all further treatment until she had foaled, when we would make trial of some other remedies; and he consented.

The animal foaled on the 21st of May, and I did not see her until the 30th; when, to my great surprise, she could see perfectly well. Her owner told me, that the day after she had foaled they could scarcely believe their senses when they perceived that her sight was completely restored.

CASE II.

11th of June, 1825.—A seven-year old mare, in foal, near her time, and belonging to M. P——.

The owner told me that this animal, which had always had very good sight, had not, for the last five or six days, been able to see at all, although the eyes appeared to be as perfect as ever. She had amaurosis. Recollecting the mare mentioned in the preceding case, I refrained from prescribing any thing, and advised her owner to wait until after she had foaled before he made use of any remedies. This took place on the 18th of June, and on the 20th the animal saw as clearly as she did before the amaurosis had been observed.

Some Remarks on the Use of Salt in feeding domestic Animals.

There are very few agriculturists or veterinarians who do not acknowledge the use of salt with regard to domestic animals, and how advantageous it is to the farmer that the cheapness of this article allows him to mix it with the ordinary food of his cattle. Many persons, in the actual state of things, believe that it is economical to salt the food of their horses, oxen, and sheep. It is not, then, without astonishment that we read in the *Spectateur Militaire*, and in the *Journal des Haras* (November 1831), "that the evil effects which bad forage produces are increased

when the forage is sprinkled with salt water; that this practice excites a violent action in the digestive organs, and promotes superabundant and dangerous secretion of the gastric juices; and that, when veterinarians give prescriptions of this nature, we may often suspect their honesty." To be thus severe, one ought to be assured, trebly assured, that we are not deceived; and still more we ought to think, with regard to those whom we accuse, that this rudeness cannot be justified; for it is better, when we can, to attribute ignorance and error to our opponents, rather than dishonesty. A little inquiry will, nevertheless, serve to shew that, if the advantage of salting bad forage appears sometimes doubtful, there is a great deal of hay that cannot be called good, with which it is incontestibly useful to mix a little salt in proper proportions. This leads us to inquire whether salt cannot be used, in order that forage should not become spoiled, and that thus we may be able to prevent an evil which cannot be completely repaired.

There is no doubt, in the first place, that bad forage, which is neither mouldy nor musty, but only deficient in nutriment, whether from being grown on marshy ground, or mown too late, when by the production of the seed the stalks were become yellow, hard, and fibrous; or whether, when it was mowed, it was wet and discoloured, and deprived of some of its most valuable principles by the successive action of the rain and the sun; there is no doubt, we repeat, that fodder of this kind is improved by a mixture of salt. This question is quite settled. The flavour of such hay becomes more agreeable to the animals; the mastication and impregnation with the saliva (*l'insalivation*) is much better performed; the digestive canal and the glands, which it contains, are sufficiently stimulated. Finally, experience proves that the food which is artificially salted, as well as those plants which grow on land impregnated with marine salt (the hay from the salt-marshes), agrees well with animals, is highly nourishing, and contributes to keep them in health and vigour.

The advantage of salting bad fodder can only appear doubtful, when it induces the animal to eat mildewed and mouldy hay: it is necessary, therefore, to consider for a moment the nature of these injuries done to the food. The mildew, which in wet seasons, and on grounds which are not sufficiently drained, attacks living plants, both the different species of corn, and all the grasses.

The mould, or must, appears in hay which has been badly made, or preserved. Both mildew and mould are regarded as composed of little fungi, or mushrooms, which not only diminish

the nutritive quality of the hay and corn, but communicate deleterious properties to them. By vegetating at the expense of the plant, they impoverish it, and by their presence render it irritating and injurious, capable of producing different diseases, depending on the state of the constitution; but, according to Professor Gohier, they usually commence by an irritation of the intestinal canal. The less of this fodder is given, the less is the evil produced; it is therefore true, that we may be permitted, when there is no other food, to diminish as much as possible the ration, and only to give those parts which are least deteriorated. We should recommend that the mouldy hay and mildewy corn, or chaff, should be carefully shaken, and lightly beaten, to separate from them the deleterious poisons which they contain; they should then be sprinkled with salt water, to unfold the nutritive principles which remain. The quantity of salt recommended in a treatise, published in 1816, on occasion of the injury of the fodder during this rainy season, was rather more than an ounce and a half of salt dissolved in water, sprinkled over six pounds of hay. Thus prepared, the mouldy or mildewed fodder is certainly not more injurious than before it was sprinkled with the salt water. It has never been supposed that this proceeding can add to the irritation and inflammation which bad fodder would produce; because the natural stimulus produced by a condiment which all animals seek, can never be confounded with the irritating effect caused by substances which all animals refuse; and also because we have seen, that it is advisable to shake and beat the fodder as much as possible, to rid it of the mildew and mould. But we will not dissemble that an aliment like this can never become thoroughly wholesome.

It is, doubtless, on account of this that the good effect of salt becomes problematical in the opinion of some persons, who conceive that the muriate of soda adds to rather than diminishes the evil. We are convinced that bad fodder cannot be made perfectly wholesome, and that by salting it we only expose ourselves to the risk of having that irritation attributed to the salt, which is caused by the fodder itself.

We can, however, affirm, that salt is far more efficacious in preventing mildew than in remedying it. It should be used immediately after the hay is made, and at the time when it is stacked. The following illustrations, collected in different localities, may possibly determine some farmers to salt their hay, when they think there is reason to fear that it may be mildewed. We shall report them in considerable detail.

"Before the hay-harvest," says M. Kausler, Protestant minister at Oberroth, "I took great care to carry all the hay

remaining from the last year into a separate place. I then covered the floor with a layer of chopped straw; and when the first load of the newly mown hay was brought in, which I suppose was about twenty or five-and-twenty hundred weight, I spread over it from three pounds and a half to four pounds of rock-salt, or three pounds of kitchen-salt; and I mixed the same quantity with each load as it was brought in."

M. Kausler always does the same, whether the hay is perfectly dry or not: we do not recommend this practice, because we think that it ought to depend on the state of the hay, and because the quantity of salt seems to be too small.

Sir John Sinclair gives us, in his "Code of Agriculture," some prescriptions more useful. To mix some salt with the hay when they are making the haycocks, is, according to this English author, a usual practice in the counties of Derby and York. The salt, especially when it is applied to a second crop of trefoil, or to a crop that has been much injured by the rain, stops the fermentation and prevents the mouldiness. If straw is mingled with the hay, it still more effectually prevents the heating of the rick, because the straw absorbs the moisture. Horned cattle not only eat the hay thus salted, but the straw which is mixed with it, and with more avidity than the best hay that has not been salted, and fatten upon it as well. The quantity recommended is a peck of salt to a ton of hay. By means of this, hay that had been flooded was preferred by cattle to the best hay which had not been salted.

Flandrin has transmitted to us details of the proceedings of M. Hell with regard to salting fodder, and he thus explains it. M. Hell stacks his hay and after-grass in the following manner: He dries the salt by the fire, and then reduces it to a very fine powder in an iron mortar. When the hay is getting in, he spreads half a pound of salt, prepared in the aforesaid manner, over about a hundred weight of hay, and a pound over a hundred weight of after-grass, throughout the whole stack. In those years in which the hay had suffered much during the harvest, the salt mixed with it in this manner certainly prevents it from being spoiled: but we believe that it is then better to augment and even to double the quantity. Experience proves that a dozen pounds of this hay is more nourishing than fifteen of any other, and it is not to be doubted that it forms a more healthy food.

Flandrin also says, that there is a considerable saving in mixing straw with hay; since the straw, in imbibing the juices of the hay, acquires its properties. He particularly recommends the mixture of straw with the after-grass, since that is more tender and furnishes more juices.

It is to the salting of the fodder that M. Hell attributes his

not having had a sick beast during the thirty years which he has followed this practice. We have seen that Sir John Sinclair insists on the good quality of the fodder salted at the time of its being stacked: M. Kausler, who was quoted first, is of opinion that hay, thus prepared, is more nourishing and wholesome. None of these writers on agriculture seem to fear the irritating effects of salt given in such small quantities, and it is probable that the greater part of our readers partake of their opinion; and that from these reflections which have been submitted to them, or from others which they may have seen elsewhere, they may be induced to draw the following conclusions:—That salt, as far as the price would permit, ought to be mixed with the ordinary food of cattle; that it renders more profitable and more easy of digestion those aliments which, from some cause, have not acquired much nutritive property, or which have lost some part of it. If it cannot be regarded as capable of rendering dusty and mouldy hay salubrious, at least it is desirable to try it in these circumstances.

It is preferable, when we fear that the hay may ferment or become mouldy, to mix salt with it at the time that it is stacked, and to augment the quantity in proportion to the excess of injury which may be suspected to exist. And it is also useful to mix straw with the hay.

Recueil de Méd. Vét., Dec. 1831.

ANNUAL DINNER OF THE VETERINARY STUDENTS.

Messrs. Editors,

In the absence of all other communications on the subject, lest it should pass unnoticed, you will oblige by giving insertion to the following few and brief observations.—I was one present.

On Saturday the 4th inst., the Veterinary Students' Anniversary Dinner, in honour of their Preceptors, took place at the Freemasons' Tavern. About eighty persons sat down to tables plentifully supplied with viands, nor was there wanting of "liquor good store."

Sir Astley P. Cooper, Bart., again occupied the chair, and by the urbanity of his manners, conjoined with his affability, and the high interest he expressed for the continued improvement of veterinary science, he enchained in bonds of cordiality all those around him, adding much to the agreeableness of the meeting. He was supported on his right by Professor Coleman and Assistant Professor Sewell; on his left by Sir C. Bell and Dr. Babington; whilst on either hand sat several teachers of emi-

nency and talent, to whom the veterinary profession is indebted. I observed Professors Hawkins and Daniel, Dr. Bright, Mr. Tyrrell, and others. Several veterinary surgeons, and friends too, were present, and of the pupils a goodly number; which redounds to their credit, adds to their reputation, and is highly worthy of commendation.

The loyal and patriotic toasts, almost inseparable from a public dinner, being disposed of, those more immediately connected with this association followed. These it is not necessary to particularize: it might be said they savoured much of their usual character. Many were received with warm plaudits, and elicited in reply corresponding sentiments. The evening being far advanced, and Sir Astley having given his parting benediction, there was a loud and unanimous call for the Assistant Professor to fill the chair. This being complied with, he was surrounded with not a few who expressed their warmest attachment; and although it might be truly said there was a "flow of soul," yet was there also a "feast of reason." No jarring or discordant note tended once to break the harmony of the night, and the Sabbath's morn had been well nigh entered on ere all the guests had taken their departure. I must not omit to notice the activity and attention of the stewards selected for the occasion out of the body of students. The vocal department also was more than usually effective, consisting of Messrs. Broadhurst, Fitzwilliam, Bellamy, Gibbon, and Master Howard, who contributed much to the conviviality of the entertainment.

I am inclined to look favourably on this yearly association. The veterinary profession by it retains unbroken the link of union with its elder and superior, the human; and whilst its members feel honoured by the presence of those who are known throughout Europe as men of talent and skill, and to them tender all respect; yet is no servile obedience offered, no sycophantish submission (this would be to insult), but a wish for a cordial co-operation for the benefit of science is expressed and mutually exchanged. It also affords the young aspirant for fame an opportunity of holding converse with those who have been, and are, their country's boast; whilst from them, as instructors, flow many an admonitory caution and remark. Nor is this meeting without its pleasurable feelings to the elder—to those who have long practised the art they profess a knowledge of. Through it they are led to recal the time when once too they were pupils, and can participate in the enjoyment of the feelings which now pervade the breasts of those who are proud to be allowed to express publicly the obligations they are under.

I will only add, Long may both teachers and pupils live to

remember this last meeting; and may each succeeding year witness such another!

Dinner of the Medical School of the University of London.

[From a Correspondent.]

On Friday last, February the 23d, the Medical School of the University of London entertained their different Professors at the Freemasons' Hall, Great Queen Street, Lincoln's Inn Fields. The gentleman chosen to act as president was Mr. Nathaniel Eisdell, a distinguished student of the University; Messrs. Nash and Wright filling the offices of vice-presidents.

In addition to the usual medical professors, invitations were issued to Professor Amos and Mr. Youatt: to the first, on account of his association with the chair of medical jurisprudence; whilst to the latter it was wished to offer some testimony of acknowledgment for the urbanity with which, by permitting the medical students to attend on some of his lectures on veterinary surgery, he had enabled them to make such valuable addenda to their already extensive means of observation and improvement.

I have neither time nor space to enumerate the various toasts. The address of the chairman, when "Our Professors" was given, elicited much applause. The memory of the late Mr. Bennett was respectfully and appropriately proposed by Mr. R. Shute, the gold medalist of the last class of the deceased Professor, and drunk in "solemn silence." The kindly and decorous feeling with which the toast was received was highly pleasing to those who knew him, and, knowing him, esteemed him, and retained a deep sense of the benefit they had received from his instructions.

The conviviality of the assembly (one hundred and twenty in number) was kept up till a late hour; and the excellent arrangements of the evening were much praised.

TO CORRESPONDENTS.

We know what was done, or rather not done, and *Studens* is, on the whole, right; but his language is too unmeasured, we may almost say libellous.

C. B. will obtain an exceedingly superficial and erroneous notion of anatomy from plates, even if we had any good ones; which, to our shame be it spoken. we have not. All that he can do at present is, carefully to study Mr. Percivall's work, as soon as published, for the anatomy of the horse; Mr. Blaine's "Veterinary Outlines" for the theory and treatment of disease; and "The Horse" of the Society for the Diffusion of Useful Knowledge, for a popular but not superficial sketch of the anatomy, pathology, and general management of that animal. Richerand's "Physiology," and the last edition of Lawrence's "Blumenbach," will be useful auxiliaries.

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ANATOMY OF THE HORSE.

[Continued from page 123.]

OF THE NERVES.

THE nerves are soft, white, fibrous chords, proceeding from the brain and spinal marrow to all parts of the body.

Number.—From the brain issue *ten pairs*, denominated *cerebral nerves*; from the spinal marrow, *thirty-six*, termed *spinal*: making, altogether, *forty-six pairs*.

Magnitude.—In some animals (among which may be numbered the *horse)* the nerves, taking them generally, are of larger size than they are in the human body; although the brain of the latter far preponderates in volume. According to Richerand, "the spinal marrow and the nerves, in the different animals furnished with them, are larger in proportion to the brain, according as the animal is more distant from man in the scale of animation."

TABLE OF THE CEREBRAL NERVES.

NERVES.	CEREBRAL CONNEXION.	DISTRIBUTION.
1st Pair.—*Olfactory*	Corpora Striata	To the Nose.
2d Pair.—*Optic*	Thalami Nervorum Opticorum	To the Retina of the Eye.
3d Pair.—*Motores Oculorum* .	Crura Cerebri	To the { Ophthalmic Ganglion; Levator Oculi; Obliquus Inf. Oculi; Adductor Oculi; Depressor Oculi.
4th Pair.—*Pathetic*	Tubercula Quadrigemina . .	To the Sup. Oblique Muscle of the Eye.
5th Pair—*Trigemini*	Ophthalmic . .	Lachrymal . . { To the Forehead; Lachrymal Gland — Conjunctiva — Ciliary Glands. Supra-orbitar { To the Forehead; Sup. Eyelid. Lateral Nasal { To the Membrana Nictitans; False Nostril and Ala Nasi; Ophthalmic Ganglion.

5th Pair *(continued)*	Crura Cerebelli	Sup. Maxillary	To the Under Lid and Lachrymal Duct
			Antrum and Molar Teeth
			Sphæno-palatine . { To the Nasal Chamber; Sinuses and Roof of the Mouth }
			To the Velum Palati
			Palato-Maxillary . { To the Soft Palate; Upper Lip }
			Pes Anserinus—Dispersed upon the Face.
		Inf. Maxillary .	Reflected Branch to the Portio Dura
			Buccal
			Pterygoideal
			Gustatory { Medullary; Dental; Terminating—in the Papillæ of the Tongue. }
			Terminating Branches—to the Under Lip.
6th Pair.—*Abducent*	Medulla Oblongata	To the Abductor Oculi—Branches also to the Retractor.	
7th Pair.—*Portio Mollis*	4th Ventricle	To the Internal Ear.	
7th Pair.—*Portio Dura*	Union of { Medulla Oblongata; Tuber Annulare; Crus Cerebelli }	Chorda Tympani	
		Eustachian Branch	
		Ant. Auricular—Ant. Auricular Plexus	
		Post. Auricular	
		Int. Auricular	
		Parotideal	
		Masseter	
		Facial.	

NERVES.		CEREBRAL CONNEXION.	DISTRIBUTION.		
8th Pair.—	*Glosso-pharyngeus*	Corpora Olivaria	Reflected Branch—to the Portio Dura		
			Pharyngeal		
			Lingual		
	Par Vagum . . .	Corpora Olivaria	Branch to the Cervical Ganglion		
			Pharyngeal .	Esophageal	
				Sympathetic	
				Pharyngeal.	
			Carotid		
			Laryngeal		
			To the Tracheal Plexus		
			To the Cardiac Plexus		
			Recurrent	To the Pulmonary Plexus	
				To the Cardiac Plexus	
				To the Post. Cervical Ganglion	
				Tracheal and Esophageal	
				Terminating in the Glottis.	
			To the Ant. Pulmonary Plexus		
			To the Post. Pulmonary Plexus		
			Esophageal		
			Terminating in the Stomach.		
	Accessory . . .	Medulla Spinalis	To the Par Vagum		
			To the Ant. Cervical Ganglion		
			To the Sub-occipital		
			Terminating Branches	Anterior / Posterior	To the Muscles.
9th Pair.—	*Lingual*	Corpora Olivaria	Hyo-glossal		
			Lateral Lingual		
			Terminating Lingual.		
10th Pair.—	*Sub-occipital* . .	Union of Medulla Oblongata / Medulla Spinalis .	Sup. Branches . .	Superficial Muscular	
				Deep Muscular	
				Anterior Auricular.	
			Inf. Branches . .	Deep Muscular	
				To the Anterior Cervical Ganglion	
				To the Lingual Nerve	
				Terminating	In the Thyroid Gland
					In the Trachea
					In the Muscles.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—VEGETIUS.

ON DYSENTERY IN CATTLE.

By Mr. T. MEYER, *Jun., V. S., Newcastle-under-Line, Staffordshire.*

To the Editors of "The Veterinarian."

Dear Sirs,

I CONSIDER it to be a duty that I owe to the public, to make known, through the medium of your interesting Journal, a dysenteric affection which has prevailed in this neighbourhood, and in the county of Chester, amongst horned cattle.

During the months of August, September, and October last year, the English cholera prevailed amongst human beings, as an epidemic, to a greater extent, and with a greater fatality, than ever was known; at the same time horses and cattle, and particularly the latter, were attacked with bowel affections, to a degree I had never before witnessed; so that I consider (so far as atmospheric influence goes) we have been rather severely scourged with cholera; but heaven forbid that the whole island should be visited with the Asiatic cholera, with all the malignant features that have hitherto marked its progress.

The first extreme cases which were brought under my notice occurred at a lay in Cheshire, where ten or twelve head of cattle had already died, and three or four others were considered hopeless. There were several other slighter cases, in which the animals recovered when a proper treatment was adopted, and the diseased cattle were separated from the healthy ones. Aperients were then administered to the latter by way of prevention; and a stop was put to its further progress.

The disease was ushered in by a dull, anxious appearance; and the eyelids and dewlap were of a yellow tinge: in dairy cows there was a total suspension of the secretion of milk; a slight muco-purulent discharge from the nostrils was observed; the appetite was indifferent, bowels costive, the dung of a dark colour, having portions of blood diffused through it; but the urine was not much affected. The pulse, for the first twenty-four or forty hours, when the disease came on more gradually, was not much affected; but afterwards it became fre-

quent, small, and hard; beating at the rate of seventy or eighty pulsations per minute. In extreme cases, the febrile action set in from the first, accompanied with violent diarrhœa and tenesmus; the fæcal discharge being intolerably offensive, and consisting of a thin, watery, dirty, green-coloured fluid, full of shreds of coagulable lymph, mucus, and coagulated blood. In some, it consisted of a blackish green mucous discharge; in others, it was principally mucus, coagulable lymph, and blood, with, comparatively speaking, no portion of fæces along with it. The extremities were alternately hot and cold; the surface of the nose sometimes dry, at others having a dew upon it; occasionally during the cold fit the eyes would become sunk in their orbits, the features collapsed, the nose, inner part of the lips, and tongue of a deadly pallidness, which would be followed up by reaction, and a consequent hot fit again. The bowels were affected, in some of the extreme cases, with colicky pains; and in every case there was obstinate constipation and obstruction in the second and third stomachs. If relief was not afforded, the disease terminated fatally on the third or fourth day.

The causes appeared to be great atmospheric changes, accompanied with much moisture operating upon a frame already predisposed by living upon bad fodder.

The morbid appearances which presented themselves after death were, violent inflammation of the mucous membrane of the stomachs and bowels, particularly that portion lining the colon and rectum; presenting, in some cases, quite a dark crimson hue. The second and third stomachs, particularly the manyplus, were quite blocked up with herbivorous matter, consolidated and hardened to such a degree as to require the force of a hatchet to cut it in two: in fact, it was as dry and hard as if baked in an oven. The gall-bladder was completely gorged with bile.

From the above statement, the disease appears evidently to have been of an inflammatory type; the indication of cure was therefore, to bleed, but perhaps cautiously, in its early stages, according to the tone and feel of the pulse; to remove the obstruction in the stomachs, and get the bowels into regular action by the administration of aperients, such as (even at the first onset) aloes, followed up by sulphate of soda and castor oil; farther to abate the inflammation of the mucous membrane, and the febrile action, by giving saline medicines, combined with citric or diluted nitric acid (the former I found to have a very grateful and beneficial effect); and, to lessen the irritability and inordinate action of the large intestines, by injecting frequently through the twenty-four hours, clysters composed of starch and flour boiled in water, to which was added, a small quantity of

tincture of opium or syrup of poppy: the latter seemed to be most useful.

In some cases, where the discharge of blood had ceased, but still the irritability of the bowels and diarrhœa continued, I tried aromatics and opium by the mouth; but they invariably did mischief, producing an increase of febrile action; and in some cases, a state of collapse with a free discharge of blood again.

The abdomen was well fomented with a decoction of poppy heads and chamomile flowers, applied as hot as possible, and also rubbed with strong ammoniacal liniment. The diet consisted chiefly of linseed tea, rice gruel, or rice-milk, the milk being diluted with half its quantity of water; or oatmeal gruel; or, where the appetite continued, small portions of good hay and bran mashes were allowed, with oatmeal and water to drink.

In many cases this treatment succeeded; but in extreme cases the disease generally terminated fatally, there being no possibility of overcoming the obstinate obstruction formed at the second and third stomachs.

I cannot refrain, whilst this disease is under notice, from suggesting the idea, that when it runs to that extreme degree of which it is susceptible, accompanied with typhoid symptoms, it constitutes the murrain, which committed such ravages throughout this country in the years 1756 and 1757. What confirms me in this opinion is, the accurate description given of it by the celebrated Sauvages, as detailed in Mr. Blaine's valuable work; in which some of the essential and leading characters of that dreadful scourge correspond with the symptoms as well as morbid effects described above.

Trusting the above detail of a most formidable disease may not be uninteresting to my fellow-practitioners,

I remain, &c.

T. Meyer, Jun.

February 24, 1832.

ON M. VEZELISSE'S ACCOUNT OF A CASE OF ANEURISM OF THE HEART.

By Mr. James Turner, *V. S.*

As a practical veterinarian, and an old subscriber to your very useful Journal, The Veterinarian, permit me to thank you cordially for the numerous, well selected, and valuable extracts, which have appeared in it from time to time, setting forth the

practical skill, discrimination, and persevering industry of our continental brethren in the pursuit of veterinary science. But the direct object of my present address is, to give vent to the feelings of admiration with which I was inspired upon reading the details of a case of Aneurism of the Heart in the Horse (in your periodical for February last), by M. Vezelisse, V. S. of the 5th squadron of French Artillery; remarkable for the able, quiet, terse manner in which the case was described. In my humble judgment, I consider it as the *model of an investigation or inquiry into the cause or causes of the sudden and unexpected death of a horse.*

I write thus, not only on account of the rareness of the disease in question, and not from the slightest acquaintance with the author, either directly or indirectly, but simply to offer my mite of commendation for his scientific, concise, and at the same time elaborate description—as including not only the abstract facts of the case, and previous history of the mare, but as having conducted the post-mortem examination like a man bent on deep research. Beginning well by inspecting the sensorium, he from thence proceeds to the thorax, and finds the cause of death sufficiently manifest in that cavity; but instead of terminating his labours here, affords us also a satisfactory description of the state of the abdominal and other viscera, thereby enabling the most sceptical inquirers of other countries, as well as his own, duly to appreciate the merits of his well told case.

311, Regent Street, March 9th, 1832.

CASE OF DROPSY OF THE ABDOMEN IN A MARE.

By Mr. W. A. Cartwright, *V. S.*

On Friday, the 2d of December 1831, Mr. Powell, of Alkington, brought his hack mare (two years and a half old) to me, she being unwell. She had had farcy in her hind legs for six weeks, but not badly; and only shewed greater illness by refusing her food, &c. for the last day or two. She had been doing duty in the cavalry last October, for eight days; hard ridden, and fed very freely with new oats; and was supposed to be five years old.

Symptoms.—Seems rather sore about the throat; but there is no swelling, nor has she any cough or discharge from the nostril. Hind legs swelled a little with farcy humours: will eat but very little; seems very weak, especially in her hind quarters; pulse quick, but very weak; respiration slow.

Treatment.—Powdered cantharides a scruple, yellow resin

two ounces, Barbadoes aloes half an ounce, to be made into four balls, and one given every day; a stimulating embrocation to be applied to the throat.

3d.—No better. Paws with her fore legs, but generally with the off one; does not eat. Pulse as yesterday; belly rumbling much, and did so before she had had any medicine given to her. Two of the above balls had been given; and as the owner of her said she had not dunged since I saw her, I gave her half an ounce of aloes in a ball.

4th, 12 M.—The physic is operating rather too much; she stands up most of the time, and paws a great deal; ears rather cold; legs pretty warm. We considered her "full in the flanks," and swelled; and the owner thought so when he first brought her to me. ℞ Powdered opium one drachm, powdered ginger half an ounce; make into two balls, and give one immediately, and the other four hours after.

5th.—Physic set; pulse fuller and better. ℞ Ginger half an ounce, nitre one ounce; make into two balls, to be given in the course of the day: give plenty of good gruel.

5, P. M.—Belly rumbling much, and she paws and looks towards her sides; eyes inflamed; pulse very fair, and legs and ears warm; scarcely eats any thing, and can hardly stir: her hind legs are rather less than they were. The femoral veins being much distended, and there having been a soreness of the abdomen, I took two quarts and a half of blood from the thigh, but which was very little buffed; I also gave her a turpentine clyster, and wrapped her legs in flannel.

6th, 9 A. M.—More uneasy; paws more, and looks towards her sides: mouth smells very offensively, evidently, I think, from her stomach or bowels. ℞ Cape aloes one drachm, emetic tartar four drachms, cordial powder an ounce; to be made into two balls, and given in the course of the day.

3 P. M.—Very uneasy; and on introducing my hand up the rectum, to find the state of the bladder, she strained very much, and could not void her water. I therefore introduced the catheter, and drew a gallon of urine off, and which was of a whity-brown muddy colour, and rather thick. After her bladder was emptied she became much easier. I then rubbed some mustard on her side and her legs, so as to get a return of the farcy, and a discharge from them.

7th, 9 A. M.—Seems much better; picks a little hay; and from the last date she has been often getting up and lying down. Examined the bladder, and found it not full; but drew off what was in it, which was about three quarts, of the same colour as the other was. Has been pawing very little since yesterday;

and we thought her bowels did not rumble so much. I fancy she has been purging a little in the night, as her tail was dirtied with dung: legs and ears warm, mouth moist, and pulse pretty good. Ordered powdered opium a drachm and a half, powdered digitalis two drachms, powdered coriander seed an ounce, prepared chalk an ounce and a half; to be made into two powders, one to be given about twelve o'clock, and the other in three hours after. Four pounds of blood to be taken from the other thigh; the side blistered, and one of her hind legs, with the ointment of cantharides. There is a little œdema between her hind legs; but I think it was produced by the spilling of the turpentine clyster.

8th, 12 M.—Has not been observed to paw during the day, but lifts her hind legs rather often, which seems rather to ease them, as she is very weak: abdomen does not rattle so much, nor can we detect water in it. Pulse 43, and which seems a good standard pulse. Makes water, and which is clearer. Is not so thirsty, and picks a little hay occasionally; mouth pretty moist; off eye very much inflamed. Gave her one of the balls first prescribed.

9th.—Somewhat better than yesterday; her eyes not so much inflamed, and she can move her hind legs better; paws occasionally, but not often. I blistered the other side of her abdomen, and ordered the following balls to be given in the course of the day:—powdered digitalis two drachms, powdered coriander seed one ounce, syrup sufficient: divide into two balls.

10th.—She seems duller than yesterday; her pulse is much more bounding; extremities very warm. There is now œdema inside the forearms; the veins on the thighs are fuller again; bladder nearly empty, and she makes water well. The blister has risen well, and, on the other side, the skin is all off and discharging. I took two quarts of blood from the neck, and which was very red; but there was a little buff on it when settled. The places where I bled in the thigh did not seem to heal up as they ought to do, so I preferred the neck. As one of the balls ordered yesterday was only given this morning, I declined giving her any more medicine to day, except about four ounces of castor oil in some gruel, to act a little on her bowels.

11th.—Appetite still continues very indifferent; pulse very good, and not so full as yesterday; her thighs not so hot and œdematous as they were yesterday; mouth moist, and warm all over. We took her out into the field, and she walked better than she has done since she has been ill, and ate a little grass, and would have eaten more if we chose. Cannot detect any water in her abdomen by percussion; and she is now more gaunt in her flanks and belly. Gave her two drachms of Barbadoes aloes, and half an ounce of nitre in some gruel, and cut some carrots and

potatoes for her; but she would not eat any except the tops of the former. Dressed the raw surface where she had been blistered with some lard. The œdema between the hind legs less, and nearly gone; but that in the forearms increased and discharging.

12*th*.—About the same; gets very poor; hind legs cooler, and œdema gone; pulse as yesterday. Eats grass; eyes clear and lively; walks firmer; not so thirsty; bowels rather costive; makes water well, and which is now much clearer. Gave her two drachms of Barbadoes aloes and half an ounce of nitre. Up to this time she lay down most of her time, and was, in a manner, entirely supported with good oatmeal gruel, which we were obliged to drench her with.

14*th*.—An abscess has formed at the top of the forearm, where it was œdematous, and which I opened: it contained a good deal of unhealthy, sanious matter; it also discharges from the opposite arm in the other fore leg. Gave ten grains of powdered cantharides in some gruel.

15*th*.—Looks lively, and eats grass with avidity. She "favours" the near hind leg from some cause which at present is not obvious. The discharge is great from the wounds. The swelling diminishes at the sides of the arms, but increases more between the fore legs. ℞ Cantharides five grains, powdered coriander half an ounce, nitre two drachms; to be given twice in the day. Her pulse is more feeble and quicker; but she walks as well as she has done yet.

17*th*.—Improving. The wounds are discharging very well, and the discharge is more healthy. The wounds are numerous about the sides of each forearm; there is one in front of the breast, and the lymphatic vessels are corded leading to it, and very sore. Feeds better, and does not drink so much. ℞ Powdered cantharides four grains, ginger two drachms, coriander two drachms; make into a powder, and give twice daily.

19*th*.—Still improving. She has eaten to day a bran mash, with some ground oats in it, for the first time, and was out eating grass for three hours. The œdema about the ulcers is quite gone; but the ulcers look rough and unhealthy, and disinclined to heal. The enlargement of the lymphatics in front of the breast is in part subsided, but remains sore about the parts. The ulcers were touched with sulphate of copper, and dressed with turpentine liniment two or three times a-day. To be well kept with anything she will eat. In consequence of the mouth feeling rather feverish, I ordered the powders to be discontinued until the 21st instant, and then resumed.

22*d*.—The wounds look more healthy. Will not eat or drink

anything in the stable, and in consequence is turned out to a good pasture of grass every hour or two, several times a-day, and which she eats with avidity, and fills herself well. Not so lame in her near hind leg; her off knee is swelled a great deal. Continue to give three of the last ordered powders, and to foment the knee. From this date the mare continued to improve; the swelling soon went from the knee, lameness left her hind leg, and the ulcers healed up; and she is now quite well, and has nearly gained her former flesh and make.

Observations.—I think there can be no doubt but that this was a case of dropsy of the abdomen, as the symptoms clearly shew; such as distention, and great rumbling of water in the abdomen, and which might have been clearly detected by shaking it. Pain on pressing the abdomen, and of frequently pawing with the fore legs, I consider almost certain signs of dropsy, as I have remarked it in every case I have seen; and if coupled with looking towards the flank, lying at full length when down, &c. &c.

Whitchurch (Salop), March 12, 1832.

THE CLAIMS OF "THE VETERINARIAN."

By Mr. W. C. Spooner, *Blandford.*

To the Editors of "The Veterinarian."

Gentlemen,

I, too, am one of those who for some time past have witnessed with regret that The Veterinarian increases but little in the number of its contributors; and I have naturally been led to inquire of myself the cause of this dereliction on the part of those best able to contribute the useful to its pages. I consider that the birth of The Veterinarian was an auspicious æra to our profession; for if that work becomes what it ought to be, viz. a general receptacle for all improvements, it will anticipate years of labour and research, afford an easy and quick medium of communication, and a fountain which all might supply with some information, and from which all might receive some knowledge. There is an excellent rule observed in planting trees, particularly in those by whose aid England has become the "pride of the sea:" it is, for every single oak that is cut down, to plant two in its place. Now, as this rule has succeeded so admirably in planting, I am sure that I shall not be charged with presumption if I recommend the same rule for the observance of our profession: whenever a member receives infor-

mation from a paper in THE VETERINARIAN, let him consider it his duty to communicate two papers by way of payment. This plan I am sure would meet the satisfaction of the Editors; and if it were pursued, we should soon have no reason to complain of want of contributions; but the only difficulty would be, in the selection of the most valuable papers; and those filled with venom would, of course, be excluded. Perhaps the ready reply of many experienced practitioners will be, "Our time is so much employed in practice, that we have none to dedicate to the pen;" and perhaps they would add in their hearts, "we should not like to affix our names to any but superior papers." But, gents, I would reply, We will excuse any laboured production—a leaf from your case-books will suffice—bestow ten minutes' time, and the end will be answered. I consider, sirs, that the honour of the profession is embarked in the same vessel with THE VETERINARIAN: if the latter sink, the former will be lost; and the heads and ornaments of our profession, having the largest venture, will be the greatest losers; receiving now the greatest honour, if THE VETERINARIAN were to perish for lack of nourishment, they would merit and receive the greater disgrace, and which disgrace would be ten times more than if THE VETERINARIAN had never risen to illuminate the darkened path of veterinary science.

The work is conducted by editors of unquestionable talent; and all it wants is a more ample supply of practical papers. I, therefore, call upon the army veterinarians, and the practitioners in town and in the country, to come forward, one and all, in its support; for if they suffer THE VETERINARIAN to fail, or to become stinted in its growth, or even its field of usefulness to be diminished for want of support, they will deserve the application of a line of a distinguished poet—

"The brand of burning shame is on you all, all, all."

A CASE OF SPECIFIC INFLAMMATION OF THE MUCOUS MEMBRANE OF THE BOWELS.

By the same.

AT the close of last summer, and the commencement of the autumn, a disease of an epizootic character prevailed rather extensively in these parts; and as I have reason to believe that it extended elsewhere, I thought that ere this an account of it

would have found its way to the pages of THE VETERINARIAN. I have never seen the disease described by any of our English authors; for although some of the symptoms have been detailed by them, there are several important characters not mentioned. The virulence of the complaint differed very much in different subjects; and I will proceed to mention the symptoms attending the most violent cases.

Attention was invariably first called to the disease by the sudden and total loss of appetite. On examination the mouth was found excessively hot, the bowels very costive, urine sparing, and high coloured; pulse from 70 to 90, and often intermittent; and one eye swollen. The treatment that I generally pursued in the first stage was venesection, from 8 to 15 pounds, according to age, strength, and size. The blood was never buffy, but generally had the appearance of healthy blood, though sometimes it was of a dark colour. The bleeding in a few cases was repeated the same day, and again the following; but most of the horses were bled only once. As I have intimated, the bleeding did not appear to afford relief, but the symptoms generally increased; from this, however, I must except the case combined with inflammation of the lungs.

Conceiving the disease to be a specific inflammation of the mucous coat of the bowels, I wished to produce active purgation without running the risk of adding to the inflammation: with this view I administered linseed oil, a pint; aloes, ʒii; emetic tart. ʒiss; nitre, ℥iij, in a draught. The linseed oil, in doses of ℥vi, with the emetic tartar and nitre, was repeated every three or four hours; and sometimes the aloes was omitted, and digitalis and supertartrate of potash added, in doses of one drachm of the former and three of the latter. Plenty of linseed and oatmeal gruel was frequently given, and oily injections often repeated. It generally required a large quantity of oil to be given before catharsis was produced, which sometimes was not effected until the third day, and after two quarts of oil had been administered. In one or two cases the purging was greater than I could have wished: it continued for two days and nights, but was unaccompanied with any of those unfavourable appearances that generally follow the too large exhibition of aloes. As soon as the appetite in anywise returned, carrots and mashes were allowed, but no corn, and but little hay for some time. Some of the horses were attacked a second time, but in a milder form: this I attribute to having had some corn given to them too soon. The relapse was removed by the opening and fever medicines, without any bleeding. A complaint very similar to this raged in

France a few years since, and carried away a great many horses. It is well described by Hurtrel d'Arboval, in his *Dictionaire Veterinaire*, who stiles it *gastro-enterite*, and whose observations are well worthy of attention. To him I must acknowledge myself much indebted for my views and treatment of the malady. The vision, I should observe, was completely restored, without the slightest alteration in structure. I commenced my paper by saying, that the malady was not described by any of our English writers, and I think the symptoms I have detailed will bear out my remark; for although White and others have described a disease under the term "molten grease," yet we do not find mentioned the affection of the eyes, the remarkable quick and intermitting pulse, or the excessively hot mouth (so hot, that I have never felt so great a degree of heat in any other inflammatory case). It was rather a singular feature in this epizootic, that it was confined to three particular stables, although there were nine others in the same yard; and there were two horses (perfectly well) removed from another stable into one of these, and both had the complaint shortly afterwards. The question would naturally arise, is the complaint infectious? For my own part, I am inclined to think that it is not (notwithstanding the circumstance above mentioned); but I should be glad to hear the opinions of others.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE IX.

The Causes of Glanders continued—Want of Exercise—Privations—Fracture of the Nasal Bones—Previous Diseases of almost every character—Hereditary Predisposition—Atmospheric Influence—Moisture—Contagion.

Want of regular Exercise.—This is a frequent, although unsuspected, predisposing cause of glanders, as it is of almost every disease to which the horse is subject. Mr. Turner has well explained this in his valuable account of the navicular disease. He does not attribute the inflammation of the synovial membrane, and consequent injury and disorganization of the joint, to honest wear and tear upon the road. It has its real origin in rest. The predisposition for it is engendered in the stable, although it becomes permanently established by violence out of the stable. So, when a horse is irregularly worked, and,

more particularly, worked with unusual severity, and is become out of spirits, and falls away in flesh, a holiday is given him: he stands idle for three or four days, or a week, until he begins to look more lively, and has considerably improved apparently in condition. He is then suddenly taken out of the stable, he is put to his former hard work, and perhaps the owner attempts to make up a little for lost time; but his muscles have got out of the habit of action, there is too much interstitial deposit between their fibres, and it requires a vast deal more exertion of nervous energy, and more actual labour, to accomplish his wonted task: and, when it is accomplished, and he reaches his stable once more, he hangs his head, and stands with eyes half closed, and refuses to eat; he is, in fact, in a state of fever. The groom, however, attributes this to debility, and instead of the slight bleeding, and the mash, and the tepid water, and the hand-rubbing, which would presently set all right again, he crams him with cordials; he adds fuel to fire; he aggravates the state of fever: and this state of general fever very soon has a local determination—so rapidly, indeed, in the majority of cases, that some have denied the existence of pure fever in the horse. The weakest then goes to the wall; and either the lungs or the feet, or this membrane, almost the weakest part of all, exposed day after day to the stimulating, debilitating influences of which I have spoken in a former lecture—the membrane of the nose—becomes the principal seat of inflammation, which terminates in glanders.

Severe Exertion.—It is in this way that glanders has so frequently been known to follow a hard day's chase. The seeds of the disease may have previously existed; its progress may have been hastened by the general and febrile action excited, the consequence of over-work for which the horse was not prepared, and also by the absurd measures which were adopted, not calculated to subdue the fever, but to increase the stimulus.

Every exciting Cause of Disease.—So it is, partly from the natural sensibility of the membrane and the important function it is constantly performing, and the injury to which it is absurdly subjected, that there is scarcely an exciting cause of disease that does not exert its chief, its worst, influence on this membrane. Horses exposed to long-continued privations become glandered. At the close of a severe campaign the cavalry are more than decimated by this pest. At the termination of the Peninsular war, the ravages of this disease were dreadful. It is easy to conceive that anything that directly irritates the Schneiderian membrane may be a cause of glanders. I have stated that it is frequently the result of fracture of the nasal bones, and warned you to give

a very guarded prognosis when a fracture of these bones, or any injury to the nasal cavity, occurs.

Every previous Disease.—It is easy to conceive why various affections of the respiratory passages, I must not say run on to glanders, but predispose the Schneiderian membrane to take on the peculiar inflammation of glanders; and that it should be the sequela of strangles, and catarrh, and bronchitis, and pneumonia. There is continuity of membrane, and association of function, and a thousand sympathies. Of catarrh, however, I would say that we probably may be liable to considerable error. That which we consider to be catarrh may, in fact, be glanders under its insidious form; appearing, intermitting, returning, now under a more threatening, and then scarcely recognisable, form, until at length it assumes its true and undeniable character; the glands also enlarging, and diminishing, and almost disappearing, and then as prominent and hard as before, playing about the inner surface of the lower jaw-bone, as if desirous yet fearful of adhering to it. All this I can easily comprehend, but I must have it beaten into me by experience,—and experience does prove it to me,—that pleurisy, and hepatitis, and fistulous withers, and mange, and inflammation of the testicle, and fracture of the sacrum (I am narrating from my own experience), and epidemic catarrh (and that within a few days of the present time), and quittor, and founder, and grease, shall terminate in glanders. My revered friend, Mr. John Percivall, castrated a three-year-old colt: the wound did not take on a healthy character, and on the seventh day pimples began to appear in a connected chain, running from behind the stifle towards the posterior extremity of the buttock. The next day they assumed the form of buds, and there was between them the connecting corded absorbent. On the tenth day similar swellings appeared on the other thigh. On the following day considerable discharge appeared from the nose; the chancres of glanders were evidently to be seen, and the colt was destroyed on the twenty-sixth day, decidedly farcied and glandered. How is all this? Is this the natural termination of almost every disease of the horse? No: for, as I have already observed, there are many countries where glanders is unknown. It is the consequence of our preposterous treatment of the horse—of that injurious stimulus, and consequent debility, and predisposition to take on any and every morbid action to which we have exposed this vascular and sensitive membrane. I am happy here to be able to agree with Mr. Vines;—there is not a disease which may not lay the foundation for glanders:—I must not say, which may become the *cause* of glanders, but which may dispose this delicate, abused mem-

brane to take on this peculiar inflammatory action from causes that would otherwise be harmless and ineffective. Weeks, and months, and years, may intervene between the predisposing cause and the actual evil; but at length the whole frame may become excited or debilitated in many a way, and then this most debilitated portion of it first yields to the attack. The truth is that this membrane, from its vascularity and its sensibility, is always disposed enough to take on inflammatory action; and it only wants a little of our unnatural treatment of the horse, to render it the certain, ultimate, victim, whatever be the part primarily attacked.

Hereditary Predisposition.—There is one cause of glanders that has not been sufficiently estimated—hereditary predisposition. This is a doctrine stoutly denied I know by some, to whom I should be disposed to yield much deference. It has been but lately admitted by any; but, once admitted, it is gaining new advocates every day. There is scarcely a disease that does not "run in the stock." Human surgeons have long admitted this, and veterinary surgeons, in spite of old prepossessions, are compelled to yield their consent. It is useless to quibble about terms;—there is that in the structure of various parts, or their disposition to be affected by certain influences, which perpetuates in the offspring the diseases of the sire; and thus contraction, ophthalmia, roaring, are decidedly hereditary: and so in glanders. This is a very important subject for consideration. It concerns us in our practice. It much more concerns our employers, and we should endeavour to convince them that it does. M. Dupuy relates some decisive cases. A mare on dissection exhibited every appearance of glanders; her filly, who resembled her in form, and in her vicious propensities, died glandered at four years and a half old. A second and a third mare, and their foals, presented the same fatal proof that glanders was hereditary. I may be told that it is possible that these three foals might have contracted the malady from the same unknown causes to which the dam owed her disorder. I have nothing to do with mere possibilities. A thousand dreams, wild as imagination ever created, may be possible; but when I have three foals dying of the disease by which their dams were destroyed, and one of them evidently inheriting the form and the character of the dam, I see the strong probability of an hereditary predisposition; and, coupling this with the fact that Tipperary was overrun with the blind progeny of Chanticleer, and that it took many years to eradicate the roaring with which Major Wilson's horse had infected the best breeds of the country, the probability assumes almost the form of certainty.

Atmospheric Influence.—This has much to do with the prevalence of glanders. It is not so frequent in summer as in winter. There is perhaps a reason for this, independent of atmospheric influence; the animal is not exposed to the same exciting causes from our absurd treatment. The stable is not so close nor so foul, and the alternation of temperature is not so violent.

Moisture in various Forms.—It is not so prevalent in a dry winter as in a moist one. Moisture has much to do with the existence and the spread of almost every epidemic or contagious disease. It is necessary to the decomposition of every animal and vegetable substance, and it seems necessary likewise to give deleterious influence to the gases extricated in that decomposition.

There are several remarkable cases of the connexion of moisture, or moist exhalations, with the prevalence of glanders. When new stabling was built for the troops at Hythe, and inhabited before the walls were perfectly dry, many of the horses that had been removed from an open, dry, and healthy situation, became affected with glanders. Some time having passed over, the horses in these stables were as healthy as the others, and glanders ceased to appear.

An innkeeper at Wakefield built some extensive stabling for his horses; and, inhabiting them too soon, he lost a great proportion of his cattle from glanders. There are not now more healthy stables in the place. The immense range of stables under the Adelphi in the Strand, where light never enters, and the supply of fresh air is not too abundant, were for a long while notoriously unhealthy, and many valuable horses were destroyed by glanders; but now they are filled with the finest waggon horses that the metropolis or the country contains, and they are fully as healthy as the majority of stables. In a French journal an account is given of one of the French cavalry regiments. It was in a low damp situation, and the stables were damp; and they lost in that year thirty-one horses from glanders. Their quarters were then shifted to a drier situation and better constructed stables, and one only was destroyed in that year.

The Influence of Age.—Age seems likewise materially to influence the development of glanders. Except in cases where the foal has sucked a glandered mare, there appears to be an almost perfect immunity until the animal is three years old. It is true that the horse can scarcely be said to be exposed to the usual exciting causes of this disease, until he has arrived at that age; and he is comparatively exempt from the influence of contaminated air, or sudden alternations of temperature. From that

period, until he is five years old, he is not often attacked by this fatal disease; for, although he is more exposed to danger, neither his frame generally, nor the membrane of the nose in particular, is much debilitated or disposed to take on inflammatory action. After that period the disease much more frequently appears.

In a record of 134 horses that died of glanders in a cavalry regiment, the following is the singular result. It should, however, be previously stated, that the majority, or almost all of them, are admitted considerably under five years old, and that many are smuggled in when they are not much above three. Under five years old, only five died—from five to six, sixteen—from six to seven, thirty-one—from seven to eight, twenty-seven—from eight to nine, twenty-seven—from nine to ten, eighteen—and above ten, seven. The greater number perished from six to ten; and they that had sufficient strength of constitution to repel the fatal influence by which they were surrounded until they were ten years old, had been completely seasoned, and could not be killed by any thing. A great deal of instruction will be derived from a comparison of the earlier ages, and which your reflections cannot fail of suggesting to you.

The main Cause is Contagion.—I now approach, gentlemen, not without hesitation, but without fear, the grand cause of glanders—contagion. I advisedly call it "the grand cause," for I believe that I shall be able to render it probable, that glanders arise oftener from contagion than from any other source. I know that our continental neighbours deny the contagiousness of glanders altogether; but they do not, and cannot, deny that the disease does follow contact, and often mere proximity of situation. When they tell me that it is not the disease that is communicated, but a mere predisposition, a greater aptitude in the frame generally, or some part of it, to be affected by the usual causes of glanders, I cannot but regard this as the merest quibbling. I take the broad fact, that a glandered horse being inadvertently admitted into a stable, some of his companions after awhile become glandered too. The stable has previously and for many years—nay, from the very time of its erection—been free from the disease, and no alteration whatever has taken place in the system of management; a glandered horse finds his way thither, and in a few months the whole team is glandered. When, in the face of this, a person tells me that it was not the disease which was communicated, but a facility of being acted upon by certain agents, I regard it as a species of quibbling unworthy of a scientific pathologist; and I deprecate the injury which may be done to the agricultural community by the broad assertion, thus ridiculously and falsely explained, that glanders is not contagious.

Then there are those in our country, and of deservedly high reputation, who, although they admit the contagiousness of the disease, affirm that it is generated a thousand times where it is produced by contagion once. To them I can only oppose the result of the experience of the profession generally, and of the agriculturist everywhere.

I will not detain you by the objections of some medical men, that a disease cannot be at the same time spontaneous and generated. I will only observe, that there is a degree of folly in entering with much positivity into any general disputation on this subject; for every disease has its own mode of action, and is governed by its own laws; and that what is known of one disease, cannot with certainty be predicated of any other: and, farther, that here, more than on any other point, reasoning from analogy is dangerous and inadmissible. To facts alone we must make our appeal, and to them alone we must bow. We have the undeniable facts, that mange and distemper are both generated and communicated; and every English veterinarian unites in adding to these—glanders. The only dispute is as to the degree of contagion.

Not communicated by Contact with the Schneiderian Membrane.—Fortunately it is not so contagious as mange or distemper, or some other diseases; if it were, the breed of horses would be swept away. I am also disposed to acknowledge, that it generally seems to need this predisposition, of which so much has been said, or some faulty management in the stable, in order to render it contagious. Horses have been kept week after week, and month after month, in the next stall, and some in the same stall, without becoming infected. Experiments have been instituted, which have shewn that it is sometimes a little difficult to communicate the disease. Mr. White covered a piece of lint with the matter taken from the nostril of a glandered horse, and thrust it up the nostril of a sound horse, and this was repeated on three successive days, without the slightest effect being produced. In a few days the same horse was inoculated with glanderous matter, and he soon after died glandered. Remembering what has been stated with respect to the insidious stage of glanders, and the possibility of the disease actually existing when there was little or no external appearance to indicate it, this single experiment might not be thought conclusive. Mr. White instituted several others. In three horses the matter was introduced into the nostril in the same way, and without effect; but it was applied to the fourth on rough brown paper: the membrane was abraded, the virus mingled with the blood, and

glanders succeeded. This point, then, seemed pretty clearly established, that the virus may be received without injury on the very membrane which was the seat of the disease.

Not by the Breath.—The question as to the disease being communicated by the halitus or breath, at least to any considerable distance, is likewise settled. High partitions, but not reaching to the ceiling, have been raised; and, separated by them, and especial care being taken that they should never come in contact, or wear the same harness, or drink out of the same pail, sound horses have been kept for an indefinite period of time by the side of glandered ones without injury; they were then, as I have said, placed in the same stall, and yet were unaffected.

Effects of the Virus being swallowed.—Then it was imagined that the virus must be received on an abraded surface, but some difficulties presented themselves here. It was a well-established fact, that after glandered horses had been removed from a stable, and sound ones placed in their stalls, they also became glandered; and when there was no previous unhealthiness of the stable, and no bad management to account for the production of the disease, except that the stalls had not been sufficiently scoured, and some of the matter of glanders in a dry form was probably sticking about them. To this was added the fact, as well established as the former, that horses had been infected by drinking out of the same pail with glandered horses. To these Mr. White adds a more singular fact, that a team of glandered horses stopped occasionally on a gentleman's premises to take up goods, and that during the time of loading they were fed with hay that was thrown upon the ground. More or less of this hay was left, which was generally eaten by a horse and two colts that fed in an adjoining paddock. All three of them became glandered.

Principally by being received on an abraded Surface.—Hence arises a question, whether the matter of glanders being swallowed, and passing into the intestines, and being absorbed by the lacteals, and carried into the system, may not empoison the blood, and produce this disease. In drinking from the pail the matter may be thus taken up, or, when left dry on the manger or the rack, it might have been licked off when the sound horse succeeded the glandered one. This is a point which I will not presume to decide; but I would say, if I had not the fear of my own assertion before my eyes with regard to the folly of reasoning from analogy in these cases, that there being so many instances of animal poison being swallowed with impunity, the contamination must be attributed to some abrasion of the mouth,

easily to be conceived as being produced by the hard food on which the horse is supported, or the occasionally severe discipline of the bit.

More contagious than some have supposed.—One point, however, is established, I think,—that glanders is far more contagious than many have supposed: Mr. Turner's mare destroyed four of her companions. The poor widow at Paddington had her stable perfectly emptied by the disease; and I will venture to say, that there is not a district throughout the kingdom, in which some farmer, by the loss of a considerable proportion, or the greater part, of his team, has not had sufficient proof of the contagiousness of glanders. The cause of this doubt with regard to the frequent communication of the disease by inoculation, seems to have arisen from ignorance of its insidious nature. When glanders appears, and the horse has for several weeks or months scarcely been exposed to the possibility of contagion, it has at once been concluded that the disease was generated in him by some assigned or unknown recent cause. It has now, however, been proved to us that the disease may exist and may be communicated to others, when, for many months, there has been nothing to excite suspicion in the mind of the groom or the owner; and when the candid veterinarian acknowledges, that, had not the circumstance been pointed out to him, it would probably have escaped his observation. The truth of the matter then is, that every horse that passes through a fair, or is baited at an inn, or even travels the common public road, may be infected without the rider's or owner's knowledge or slightest suspicion. A glandered stallion neighed at a mare that was separated from him by a double hedge and a deep lane; the virus was wafted across by the wind, and she became diseased, and died. It is impossible for any one to say, except there be some plain and manifest cause for the generation of the disease, that any horse did not receive it by infection. There would be a degree of presumption in the assertion which the calm inquirer after truth should not display.

Uncertain Time of its Appearance after Infection.—In the experiments which have been made for the communication of glanders, a few days only have generally elapsed before the disease appeared. In some cases, however, a fortnight or three weeks have passed, and no symptoms of glanders have been seen, and the animal, generally a condemned subject, has been destroyed, or has died from some other malady; and thence the conclusion has been drawn, either that the horse whence the matter was taken was not glandered, or that glanders could not be propagated in this way. The new light, however, which has been thrown on this early history of the malady, will make us a

little doubt whether much dependence can be placed on experiments of this kind. A very interesting one, and bearing on this point, was made by M. Rodet, one of the professors of the veterinary school at Toulouse. He scarified the pituitary membrane of a horse with a lancet, and then rubbed some matter of glanders over it. He also raised the skin from a portion of the cellular substance between the branches of the lower jaw, and injected more of the virus into the cellular texture. This seemed to be making sure of the inoculation. Twenty-six days, however, passed without the slightest effect having been produced, and then appeared a slight running from the nostrils, and enlargement of the submaxillary lymphatic glands. At the expiration of six weeks, the secretion was more copious; it was become viscid, and the glands were adherent. In ten weeks ulcers began to appear on the pituitary membrane, but the horse continued in good condition; he even seemed to be mending when M. Rodet determined to subject him to the influence of mercury. He immediately began to get worse, and was destroyed a month afterwards, but still having lost little of his condition.

The Duty of the Veterinary Surgeon in these Cases.—Therefore, gentlemen, my conclusion is, that it is impossible at all times to say what cases of glanders are spontaneous, and what may have arisen from contagion: that the greater part of those that have been deemed spontaneous, may have arisen from inoculation;—that the numerous cases of undeniable contagion would lead us to suspect that it is a frequent, or the most frequent, source of the disease; at all events, that it is folly to speak peremptorily on the question; and that if there be doubt about the matter, it is the most prudent, and the safest course, to warn the proprietor of the horse of the danger to which he is exposed on either side, that he may not only pay stricter attention to the proper management of his stable, but adopt all necessary precaution when danger threatens. He will be warned in various ways of the injurious results of heated and ill-ventilated stables. Ophthalmia, catarrh, pneumonia, will often teach him a painful lesson: but if he is taught to believe that glanders is seldom, or almost never, communicated; that not one horse in a thousand receives the disease from contagion; he will neglect those precautionary measures which would have saved his whole establishment from ruin.

The law is severe against the offering for sale and even the working of glandered horses; and the opinion of our ancestors, from time out of date, had taught us to beware of glanders as a contagious as well as a fatal disease. Let us not, without incontestable proof, abandon that which for ages was never

doubted, and, most of all, let us not do it where, from the nature of the case, *no proof can possibly be given;* where all the persuasions offered to us must be theoretical alone, and where an error would not only compromise our reputation, but do irreparable injury to our employers.

There is not a circumstance that has been productive of half so much loss to the agriculturist, and the proprietor of horses, as this too frequently and too positively repeated assertion of the comparative non-contagiousness of glanders. Many thousands of pounds would not cover the *annual* loss. A case occurred about two years ago, and not a very great way from this metropolis. A gentleman had a team of farm-horses, almost unrivalled for activity and strength. One of them exhibited symptoms of incipient glanders. A newly arrived young veterinarian was consulted as to the propriety of preventing all farther mischief, and cutting short the affair, by destroying the diseased animal. "Oh! by no means," said he; "there is not the danger about glanders which some foolish people imagine; you well ventilate your stables, and let there be no animal poison lurking there from air that has been breathed over and over again, and I will answer for it, your other horses are safe enough: there is not one horse in a thousand that *catches* glanders." The gentleman was somewhat surprised, and expressed a little doubt about the matter; but, the young theorist producing chapter and verse in elucidation of his point, he suffered himself to be over-persuaded; and in less than a twelvemonth he had not a sound horse upon his farm.

Glanders in the Human Being.—The path of propriety and of duty evidently is, to put the farmer and horse-proprietor on their guard. The experience of every age, and I would say of every man who has seen country practice, teaches him that a glandered horse can rarely remain long among sound ones without serious mischief ensuing. It is affirmed that glanders is communicable to the human being. That a loathsome and a fatal disease results from inoculation with the matter of glanders is undoubted; but that it bears the true character of glanders I do doubt; but of this my medical hearers, now that the symptoms and course of glanders have been described, will determine better than I can. I am aware, indeed, of one case which goes a great way towards establishing the identity of the diseases. One of the feeders in the Badsworth hunt cut himself while preparing a farcied leg for the hounds. He died within a week. A day or two before his death, an ass was inoculated with the matter from some of the sores that broke out about him, and died evidently glandered. This is a strong case; but then,

on the other hand, I know that every thing that causes much disturbance in the frame will likewise produce glanders, and particularly inoculation with the discharge of grease, with putrid matter of any kind, and even the injection of acrimonious fluids into the nose or the jugular. This should, however, teach us caution; for some very promising veterinary surgeons have been lost in this way.

Precautions proper to be adopted.—What precautions, then, shall we adopt? Remove the source of evil. Sell, or rather, destroy the glandered horse. Will this be sufficient? No; far from it; for sound horses, weeks and months afterwards, being put in a stable whence a glandered one had been taken, have speedily become glandered. Some of the discharge from the nose has remained about the manger, or rack, or partition, which, although dried up, may be readily softened by the breath of the new horse, or in the act of nibbling. Shall we, then, pull down the stables, or at least gut them, and plaster them afresh, and have new wood-work? There is no necessity for all this destruction and expense. Let the halters, and head-gear, and bridles be burned; and the clothes washed and baked; and the pails newly painted, and the racks and manger thoroughly scraped, and then washed well with soap and water and sand, and afterwards very carefully with chloride of lime and water, in the proportion of a pint of the strong solution to a pailful of water; and let the walls be well scraped and washed with the chloride of lime and water, and then well lime-washed; and the floor be first thoroughly scoured and then sluiced with the chloride, and every possibility of danger will be removed.

The treatment of glanders will be considered in our next lecture.

LECTURE X.

The Medical Treatment of Glanders—Supposed Cases of Glanders often fallacious—Importance of pure and cool Air—The impossibility of using local Applications—Counter-irritants—Tonics.

The unsatisfactory Nature of this Inquiry.—I regret that I have nothing satisfactory to lay before you on the medical treatment of glanders. There have been a thousand pretended specifics; and even regular and scientific practitioners have flattered themselves that they had discovered this chiefest among the veterinary desiderata—a cure for glanders. Some horses have apparently recovered, and that under every stage of the disease, except when the lungs were much tuberculated, and vomicæ had appeared. They have recovered under every mode of treatment,

and without any medical treatment. Hence it has happened, that almost every drug has, in its turn, been considered a specific; and every one, from the wine and oil of Vegetius, to the sulphate of copper, and the cantharides of latest celebrity, have sunk into disregard and disuse. The only cure, the cheapest and the best, and that which you will, in the majority of instances strenuously recommend, is the bullet or the knacker's pole-axe.

Frequent Deception with regard to the Cure.—Then, gentlemen, it would seem to be mere waste of time to say any thing more on this point; nor would I, if I were not aware of the method by which the public have been again and again deluded, and practitioners have deluded themselves. It has occasionally happened, that, after the administration of a certain drug, or when the animal has been left to the "vis medicatrix naturæ," the discharge has gradually diminished—it has ceased; weeks and months have passed away and it has not returned—the horse has been apparently cured. He has been dismissed from the infirmary, and the practitioner has taken to himself a great deal of credit.

Before I can add my mite of approbation, I must know a little more about this horse; I must, first of all, be *assured that he was glandered.* I must have testimony as to the chancrous ulcer and the adherent gland; and I must, in such a case, go farther; I must have the result of inoculation with the matter discharged. Even this will not satisfy me. I must know something of the horse afterwards, and long afterwards. I must follow him for months and for years. I must not only be assured that the glanderous ulcer does not re-appear, but that there are none of the strangely-varying and deceptive forms of farcy—no gradual withering and decay—no establishment of pulmonary phthisis. The horse must not, a twelvemonth afterwards, vanish from my observation, and he must not be found dead in a ditch.

I see the horse well, and at work, one, two, or three years afterwards. Am I satisfied? No, not even then. My belief in the hopelessness of all medical treatment in true and confirmed glanders is even yet scarcely shaken. I must have a second or a third trial; and a successful issue of the second and third experiment. Even then I am so unconscionable as to cling to some portion of my scepticism. I must have the remedy tried in another and distant situation, and at another and distant period; in fact, under another atmospheric influence, so that it shall be impossible for me to suspect the working of that unknown and mysterious agent, opposed to which I am powerless; and aided by which I am, in a manner, omnipotent. How

few of the boasted specifics for every disease have passed this ordeal! The specifics for glanders have not. Certain medicaments have apparently succeeded; in other, or in the same hands they have afterwards failed. Gentlemen, I am urgent in endeavouring to impress this on your minds, because I know that youth is sanguine, and many have deluded themselves, and compromised their reputation and injured their employers.

The Cure should, however, be attempted.—Do I, then, recommend you to abandon, or to refuse to treat, every case of glanders that may be submitted to you? No; no. I only ask you, in the first place, not to impose upon your employer, but unequivocally to state the apparent hopelessness of the case; and then, if the animal is valuable, and the owner wishes and urges you to attempt a cure, do so. Set at work about it in good earnest, and thankful that you have the opportunity to do so; and, further than this, when you have opportunity, without its being too burdensome upon you, seek out for cases, and experiment upon them at your own expense. The desire to relieve your profession from this blot upon its character is a laudable one; and you will be repaid by the consciousness of having been engaged in a good cause, although there should be no successful termination of your labours.

A pure Atmosphere the first Remedial Measure.—Can I guide you as to the course you should pursue? A consideration of the nature of the disease may afford you some useful hints. The seat of the disease is that vascular and sensitive membrane which lines the cavity of the nose; and the predisposing cause of the disease is, that frequent or habitual state of excitement, and consequent debility, to which this membrane has been absurdly and cruelly exposed. *Glanders is the peculiar disease of the stabled horse.* Then, it is evident, that the preparation for, or the foundation of a cure, must consist in the perfect removal of every exciting cause of the malady. The horse must breathe a cool and pure atmosphere. He must be turned out, or placed in a situation almost equivalent to being turned out; otherwise that, the accomplishment of which was *merely possible*, even under the most favourable circumstances, becomes perfectly out of the question. I have laboured to impress it upon you, that the affection of the nostril, in its earliest form and appearance, is *not the local symptom of a constitutional disease.* The disease is at first purely a local one, and it long continues so. It is only when the part is debilitated, disorganized by the continuance of inflammatory action, or the local inflammation runs its usual course, that the vitiated secretion is absorbed, and the constitution empoisoned. Our bad management produced this local

inflammation, and that management must be radically reformed ere we can remove the inflammation or its consequences; therefore, I say, that the breathing of a cool and pure atmosphere must constitute the foundation of our remedial practice.

The Reputation of some Nostrums founded on the subsequent turning out.—The majority of those who pretend to cure glanders, recommend that the horse should be turned out after he has taken a *quantum sufficit* of their medicine. In fact, if any good is accomplished, it is principally or entirely by the turning out.

The Danger of Contagion in turning out.—A salt marsh is, above all others, the place for this experiment; but there is a great deal of caution required here. No sound horse must be in the same pasture, or in a neighbouring one; the matter conveyed by the wind across a hedge may communicate, and has communicated the disease. The palings or the gates may receive a portion of the matter, which may harden upon them, and, many a month afterwards, be the source of mischief; nay, I may, perhaps, be justified in saying, that the virus may cling about the very herbage, and empoison it. I should hardly dare trust even cattle and sheep with a glandered horse; for the experiments are not sufficiently numerous or decided as to the exemption of these animals from the contagion of glanders; at all events, I should fear the reception of the virus on an abraded surface. We must, then, I fear, have a little field devoted to the glandered horse, and to him alone. I would not admit even other glandered horses, for they might be reinfected.

The impossibility of Local Applications.—We return to the nature of the disease—*chronic local inflammation, terminating in constitutional affection.* Can we get at this local inflammation, and, either by some emollient or sedative application, or by that which will produce a temporary greater irritation, but of a different character, successfully attack it? Why, in the first place, although we know it is an affection of the Schneiderian membrane, we do not know of what part of it; and, therefore, we must apply our injections hap-hazard. In the next place, we can get at but a certain small portion of the membrane by any means that we can adopt. By trephining the nasal bones we only reach the upper meatus, and there chancres have rarely been found. By trephining the frontal or malar bones, we get at the frontal and maxillary sinuses; but the fluid, or the discharge from them, pours into the nostril a considerable way down the cavity, leaving the upper portion untouched; and one moment's inspection of the contents of the nasal cavity, and their relative situation, will convince us that it would be a vain attempt to get

one drop of our injection into the upper part of the nostrils. Beside this, if we could get it there, we should but add fuel to fire; for glanders was caused by this membrane being exposed to unnatural irritation, and morbid irritation of any and of every kind has a necessary tendency to produce glanders; therefore, gentlemen, no injection, if you please, and, least of all, those acrimonious ones which can only torture the animal and hasten the termination of the affair.

Counter-Irritants.—Blisters, or setons, along the nasal bones, or the sutures between them and the superior maxillaries, or over the frontal sinuses, if the horse should give indication of pain when pressed there, are far more surgical-like measures, and should rarely be omitted in our treatment of glanders. There we are properly resorting to the use of counter-irritants; but perchance the seat of this local inflammation may not be within the reach of these stimuli, however powerful.

Tonics, particularly the Sulphate of Copper.—Glanders is a chronic inflammation of the membrane of the nose, debilitating it, and at length producing general debility. Tonics would appear to be indicated, in order to sustain the system against the insidious effects of this long-continued irritation; or to excite another, and healthier, and more powerful action, and before which the other must succumb: but, then, can we find a tonic which, while it has effect on the constitution generally, exerts its chief power on some particular part, and that part the Schneiderian membrane? Most of our medicaments have this local as well as general effect. I believe that we have this general tonic, with a peculiar local determination, in the sulphate of copper. Its effect in healing nasal abrasions and arresting nasal gleet is undeniable. How should it be administered? Not in doses which alter its character, and depress instead of supporting, destroy instead of rousing, the principle of vitality. You must not, by your incautious and rude assistance, knock the staggering man fairly down. Sulphate of copper in small doses, gradually increased from half a drachm to two drachms daily, or twice in the day, combined with some vegetable tonic that does not decompose it, and especially combined with an aromatic and stomachic, is worth trying. And then if this drug should ever be established as possessing power in the cure of glanders, let the meed of praise be yielded to Mr. Sewell, who first directed our attention to it; but against the enormous doses in which it used to be, and I believe still is, administered by that gentleman, I must record my decided protest. I have never seen *permanent* good from them; but many a horse has rapidly sunk under the excess of stimulus.

Mr. Turner has some faith in the sulphate of iron: he gives it, however, not in nauseating, overwhelming doses, but dissolved in the water, and the bucket suspended in the box, so that the horse may drink a little at a time, and as often as he pleases. He says that the horse not only soon becomes habituated to the brackish taste of the iron, but prefers the drugged beverage to his common drink. Then, gentlemen, every legitimate, but not cruel experiment, I would urge you to practise; for, doubtless, nature has provided a remedy for every disease, even for those which are the consequences of our own imprudence or mismanagement: but I trust I shall never hear that a pupil of mine has wantonly tortured a poor animal in so hopeless a case. I must never hear of your slitting the nostril, or scraping the cartilage, or firing the frontals or the nasals, or injecting pepper, or mustard, or corrosive sublimate, or sulphuric acid. There are brutes in human shape who have done so, and continue to do so. Our practice "must be founded on the union of science and humanity."

I will not detain you with a list of the medicines, and combinations of medicines, which have been used in the attempted cure of glanders. Every article of the human and veterinary pharmacopœia has been called into requisition, and, according to the opinion of some practitioner or other, successfully so. The bare enumeration of them would occupy almost a lecture. The few hints which have been suggested will be sufficient to guide you so far as a safe and practicable path can be traced over so intricate a region.

Caution against being too sanguine.—But with regard to all these curative measures, again I say, be not too sanguine, not even although success should seem to crown your efforts, and that particularly in the most judicious and efficacious of all your means—long exposure to cool and pure air. I recollect, about sixteen years ago, having turned out several glandered horses: they were emaciated, ulcerated, and seemingly in the most hopeless condition. They had a six, or eight, or nine months' run; and they came up plump, and apparently sound. I was half deceived, and willingly so. I had, however, the opportunity of tracing most of them; and of the majority of those whose after-fate I could ascertain, this was the result. The predisposition to the disease remained; the membrane was in some degree irritable; possibly the very disease remained in an insidious state; and in less than six months the discharge again appeared, the glands enlarged and became once more adherent; chancres soon followed, glanders was fully re-established, and that in a

worse form than before: the malady speedily ran its course, and they died.

Tricks of Dealers.—I need not warn you of the tricks by which some dishonest dealers endeavour, and with the uninitiated too often successfully, to conceal the existence of glanders. Sometimes they are said to give a brushing gallop, in order to clear the air-passages; then they inject a solution of alum, or sulphuric acid, up the nostril, by the astringent power of which the discharge is for awhile stayed. The animal is doubtless tortured; but I can hardly believe that the astringent effect would continue sufficiently long, or, in fact, could be established, from the improbability of being able to bring the liquid in contact with the diseased surface. When the discharge is from one nostril alone, some are said to introduce a piece of sponge too far up that nostril: there will still remain, however, the indurated and adherent gland, or the lividness of chronic glanders, or the intense inflammation produced by the caustic that was injected. Either of these would excite suspicion; and if the examiner is at all on his guard, lead to certain detection.

ON ENLARGEMENT OF THE SPLEEN IN THE HORSE.

By Mr. W. Mogford, *V. S.*

[From *The Lancet.*]

Sir,

Perceiving both in Part iii, page 489, of Mr. Percivall's scientific Lectures on the Veterinary Art, and also in a work of great merit, entitled "*The Horse,*" that the authors are not aware of any means by which diseases of the spleen may be detected, I beg leave to lay before you an account of the way in which, in five successive cases, I have found the spleen to be extraordinarily enlarged.

Having first emptied the rectum by raking, injections of warm water, &c., I bare my arm to the shoulder (in fact, I generally divest myself of my upper garments to the skin), which being previously well oiled, and a little also being introduced by the fingers into the anus, I gently pass up; and, at the same time, with a creeping-like motion of my hand, gather as many of the loose folds of the rectum towards me as possible, still pushing the arm on to its utmost length; at that part of the rectum, the

commencement of the colon, the hand is at perfect liberty, when turning it over on the left side, the spleen, if enlarged to the sizes subsequently described, may be very distinctly felt. Another thing I would beg leave to suggest is, that as there is a great anxiety felt by breeders and gentlemen to ascertain whether mares are in foal, before it can be distinguished by any external appearances, or before the fœtus has left the cavity of the pelvis, by passing the arm up in the same gentle manner, this may be felt without incurring the least risk of causing abortion or any other ill consequence.

CASE I.

The first case of enlarged spleen which came under my notice was in a race-horse, the property of George Leach, Esq., of Spichweek, near Ashburton: he had been ill for some time, under the care of several veterinarians, all of whom were unacquainted with the nature of his disease. When I first saw him, in June, his winter-coat was still hanging in patches on him, his skin very dry and hide-bound, pulse beating twenty-eight in a minute, and intermitting every third stroke; urine dark-coloured, and full of mucus, and similar in appearance to train oil; his bowels in a very disordered state, continually voiding large quantities of mucus, not in the manner horses do after having been hard ridden, or when under the influence of fever, but separately, and more of a jelly-like consistence.

I commenced my treatment by slightly purging him, which brought off a great quantity of mucus; but a few days after the physic had set, the mucus was again voided as before. I then gave him opium ʒss, calomel ʒj, for eight days successively, which brought his bowels into a regular state; but his urine remained unaltered. In consequence of the dark colour and turbid state of the urine, I passed my arm up the rectum, to ascertain if there was any enlargement of the kidneys, and distinctly felt the spleen, which was of a very unusual size. Soon after he died. On a post-mortem examination, the liver was found in a very decayed state; the spleen weighed fifteen pounds, and measured nearly three feet in length.

CASE II.

The second was in Clarence, a first-rate hunter, belonging to J. M. Woollcombe, Esq. of Ashbury, near Okehampton, whose spleen weighed fourteen pounds and a half, and his liver was in a highly decayed state. He was subject to inflammatory affections, for which he frequently lost great quantities of blood:

in one attack of inflammation of the lungs, he lost twenty-six quarts before he recovered. He hunted for six years, during which time, at the end of each hunting season, I gave him calomel ʒj, emetic tartar ʒss, opium ʒss, every day for nine or ten days following, at which time it produced an inflammation of the gums and strong fœtor of the breath; he would then chew young grass, but was unable to swallow it, and was supported on bran mashes and gruel. I then used to give him in solution one pound of Epsom salts, and as soon as the inflammation of the mouth and throat subsided, again repeated it. This perfectly restored him for his next winter's work, with the exception of his sometimes hunting in cold winds, wet and long checks, which shut up the pores of his skin, and lumps of the size of a small nutmeg would appear on his skin, a scurf over the eyelid, constipated bowels, dung of a light clayey colour, with a peculiar toss of the head. Aloes would then have no effect on him, but he was always relieved by the following balls, two or three times administered; calomel ʒij, emetic tartar ʒij, antimonial powder ʒij, opium ʒj. This would again perfectly restore him. He was a horse of great power, and, notwithstanding these repeated attacks of illness, was capable of almost incredible exertions. I once saw him leap over a ditch, without touching it, the distance from the place where he took off to that on which he landed being thirty-two feet; and he could carry sixteen stone to the tail of the fastest hounds. He was well known in the Devonshire hunts, where he repeatedly signalized himself by his superior speed and bottom. An account of his exploits is recorded in rhyme, in which he is described, by George Templar, Esq. of Stovor, as "fleet-footed Clarence."

CASE III.

The third is Sultan, a hunter, who was never beaten, and for whom no day was too long, belonging also to J. M. Woollcombe, Esq. The horse was unexpectedly called upon for his services in the field, when totally unfit for the exertion. In consequence of the great fleetness of Mr. W.'s hounds, he was ridden excessively hard across a very heavy country, and came home completely blown and exhausted. The next day there was a total loss of appetite, a high degree of fever, and his urine in a state similar to that of Mr. Leach's horse. I then passed my arm up the rectum, as before, and felt the spleen very much enlarged. I then bled him copiously, administered some laxative medicines, and in about a week he appeared perfectly recovered. I then again passed up my arm to feel if the enlargement still

existed, but it was beyond my reach, and I concluded diminished to its natural size.

CASE IV.

The fourth was in Tom, another horse belonging to the same gentleman, who was troubled with an inveterate cutaneous affection, for which I introduced, by way of experiment, large quantities of mercury into the system by friction. The hair was shaved off along the course of the spine, and on the inside of the thighs, and two active men were employed in rubbing in the strongest mercurial ointment for nearly an hour for eight or nine days following. This oppressed his breathing, swelled his body to an uncommon size, rendered his mouth sore, and produced a discharge of saliva; there was no mucus in the intestines, nor any in the urine, but it was of a very high colour, and very pungent. The standard of his pulse was twenty-four, intermitting every third stroke; and he had a peculiar stiffness in his hind legs. His health appeared generally good, and he was able to stand a hard day's hunt; but his spleen is, I am certain, larger than either of the other horses' were. As it reached back as far as the pelvis, it must be more than three feet in length, and I should judge twenty pounds weight. I saw him in May 1830, looking tolerably well.

CASE V.

Also another, belonging to Major Lane, of Guernsey. The spleen weighed fourteen pounds and a half; the liver was perfectly healthy. The horse had never done any work, but had always an unthrifty appearance, his old coat sticking to him; and he was subject to fits of ague, with great trembling: he was destroyed as useless. There was this difference from any of the beforementioned cases,—that the splenic artery was completely clogged up with coagulated blood; worms were found in the pancreas, and in the mesenteric gland. This is by no means uncommon, as I believe they will be found there in five cases out of ten, in horses that have been subject to them for a great length of time. While on this head, I would also observe, that horses are frequently, in the spring, seen rubbing the hair of their tails, sometimes occasioned by large quantities of bots lodging in the upper part of the rectum, just under the sacral vertebræ, causing great irritation and uneasiness to the animal: their expulsion, by introducing the hand and pullling them off, is a great relief to the tormented animal.

THE EPIDEMIC FEVER NOW PREVALENT AMONG HORSES.

By Mr. W. Percivall.

During the last month, and also (though to a less extent) during the present, an epidemic disorder has been "flying about" among the horses in this neighbourhood, which, though quite of a different nature from the one that has caused so much needless alarm and disturbance among the more rational part of the creation, has called for the vigilance and attention of the medical practitioner. Whether we christen it an *epidemic* or an *influenza,* or assign any other appellation to it, is of little moment, so long as we do not suffer ourselves to be *misled* by the *cognomen.*

It has proved a disorder readily recognizable, and one (judiciously treated) unattended with danger. To the eye of the experienced practitioner, the animal's countenance at once betrays his malady; and yet I very much doubt whether any description one could give would convey the impression to the mind of the reader; so difficult is it

"—— dicere communia proprie."

In my humble opinion, the liveliest picture one can present of any disease, is that which is taken from the plain unadorned narration of a case of the most ordinary and frequent occurrence. We are too apt, in nosological descriptions and definitions, to frame something (out of *all* the cases we may have seen) in our own mind, which, taken separately, as it stands, has really no existence in nature. As far as regards the *likeness* of the object represented, I would prefer the rough sketch taken on the spot to the most elaborate and finished representation worked off through memory's illusive retrospect.

The first intimation you have of the complaint is, that the animal is "off his feed;" that he either ate nothing, or but a little hay during the past night; and that he has likewise refused his morning feed. You visit the animal, and find him dull and dispirited, his countenance betraying his malady; the eye exhibiting either that peculiar gloomy dolorous aspect which a drooping lid and listless spirit gives it, or else being itself affected with the disorder, when it is found nearly or quite closed, and overflowing with lachrymal secretion. The pulse rarely is so low as fifty, and seldom mounts beyond sixty. The coat (particularly in the parts left exposed) becomes pen-feathered, losing its glossy sleekness; the extremities become cold; the mouth unusually warm and dry; the urine sparing,

and more or less difficulty in voiding it; the dung contracted into small hard balls, and sparing in quantity.

Such are the ordinary—*the very ordinary* symptoms. Now and then the disorder has been ushered in by a shivering fit, which I have known to last (off and on) for twenty-four hours. Some cases exhibit catarrhal symptoms along with the above: a cough is a common concomitant; a discharge from the nose more commonly *supervenes* upon the primary disorder than commences with it. The most common of the *sequelæ* of the disorder is, swelling in the legs—the *hind* always, sometimes the fore too. In two or three cases it has been ushered in by vertigo, to such a degree that the animal has with difficulty staggered a few paces from his stall into a box.

It *might* be inquired, What there was peculiar or extraordinary in all this? I will offer my own ideas by way of meeting —perhaps not of satisfactorily answering—such philosophical queries.

1st, I consider the said malady *extraordinary*, because it attacks many horses at the same season, without manifesting any results that lead me to pronounce it contagious. 2dly, I consider it to be of a nature not well understood by veterinary nosologists, because it manifestly disorders the whole frame and constitution of the animal, without evincing any signs enabling us to detect its seat or its source. In one case the *eyes* are most affected; in another, the *legs;* in a third, the *air-passages;* in a fourth, the *brain.* In many, none of these local attacks have developed themselves. 3dly, I consider it to be of a nature different from diseases in general, because it will not unfrequently make its appearance in an animal at the very time that he is under the influence of those agents which are found most effectual in its removal.

I repeat, I have found the disease unattended with danger. At least, I have treated it after a very simple fashion; and to such simple treatment it has (in every case) yielded, and left the animal a little debilitated, or more or less reduced in condition; a state from which I have, myself, always been in the habit of placing most faith in good feeding and grooming as restoratives. In the majority of cases I have not found it necessary to let blood: be it understood, however, that, so far from being averse to the practice, I am always prepared with my lancet, which I not only use with promptitude whenever I deem it necessary, but am even always inclined so to do in cases presenting anything dubious in their character. I feel I may err, and seriously too, in withholding my lancet; but I have no such misgivings when I use it. For all this, however, I repeat,

I do not, or rather have not, in the generality of cases, found the lancet requisite. I simply order for the animal five drachms of purging mass; abstinence; warm clothing; walking exercise on the day the medicine is to operate; tepid water, or water-gruel and mashes. The object in the use of the aperient is, not to actively purge the animal, but to produce a laxative effect upon his bowels; should which not happen at the expiration of four-and-twenty hours from the administration of the five drachms, another ball, containing a drachm only, is to be given; and that, if required, followed up after the same interval, by a third. However, I rarely have found it necessary to exhibit a second dose.

With the operation of the laxative declines the malady—at least in the generality of cases; leaving the animal somewhat debilitated, and with appetite delicate and fastidious. Now is the time, I should presume, to "throw in tonics;" and in accordance with this wholesome maxim in physic, I do so; I procure for my patient something nice and nutritive, wherewith to "coax his appetite." I give him not either gentian, or bark, or fenugreek; for which palpable omission I fear I shall be proclaimed

"Like no brother."

I endeavour, however, to compensate for it by carrots and parsneps, and Swedish turnips, and linseed, &c. &c., in addition to as good hay and corn as can be got.

Let it not be imagined from what I have said, or rather, from what I have omitted to say, that this disorder is invariably cured by simply a bleed and a purge. Symptoms alien to the genuine disease must be met by suitable remedies. In one case I had to contend with pneumonic symptoms; in others, with catarrhal: diarrhœa has likewise supervened. But in none have I witnessed any approach or resemblance whatever to *cholera*.

W. Percivall.

P. S. Since penning the above account, I have had my attention called to the following extract in *The Morning Post*.

"Horse Cholera.

"In the thriving village of Denny a disease has made its appearance among the horses, which has already proved distressingly fatal. The first case occurred on Monday, and before evening several valuable animals had become affected. We have not heard exactly how the malady operates; but after severe suffering the poor horses generally die in about five hours.

The farriers say, that the cause of death is violent inflammation of the bowels; while the less learned declare it to be *horse cholera*. In all, there have been seven cases and five deaths."—*Caledonian Mercury*.

It is hardly necessary to observe, in reference to the above newspaper unauthenticated statement, that, until they are favoured with something of a less dubious and indefinite complexion than this, the veterinary community are not likely to lend any credence to such reports. And, indeed, after the humbug that has been practised in other quarters, it behoves us to be more than ordinarily circumspect, how we put any faith whatever in any thing coming to us under the specious and imposing designation of "cholera."

W. P.

Windsor, March 15, 1832.

THE VETERINARIAN, APRIL 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

At the close of the year 1827, most of the kingdoms of Europe, and some of the petty states, among other means of promoting the advancement of science, possessed a veterinary periodical. England, the only country in which the study and practice of the veterinarian was confined to one of the legitimate objects of his care, the only country in which veterinary improvement, if not systematically discouraged, at least advanced slowly and unsatisfactorily, was destitute of this (we speak it with perfect consideration) best of all means for the detection of error and the propagation of truth.

Deeply feeling this professional, national disgrace, certain individuals, at the commencement of the year 1828, attempted to establish, not only one, but two veterinary journals. The old aphorism "festina lente" was forgotten here. Two could not possibly succeed in such a profession as ours then was; and it unfortunately happened, that the parties conducting these journals could not agree. Their object was the same, and their zeal equal; but they had such different methods of accomplishing that object,

that a coalition between them was, in a manner, impossible. At length, after having "done the state" real and good "service," one retired; and what became of the other? Why, at the close of the year 1829 its editors had in their possession contributions from so many valued correspondents, to which they were unable to give insertion, that they were compelled to enlarge their work.

This was flattering to them, and, as they were then told, pleasing to their readers, and, it would be imagined, advantageous to the common object of themselves and their correspondents; and so the editors proceeded in their labours, cheered, grateful, and amply rewarded.

Two years have since passed; and, in the fourth month of the fourth year, how stands the account between themselves and their brethren? Instead of having enough in store to fill, and more than fill, another number, the present journal contains papers from only *three acknowledged correspondents.* The falling off in the contributions of our brethren is so palpable, that two valued friends, Messrs. Kerr and W. C. Spooner, have taken up the subject, and pleaded our cause with a degree of ability and energy that demands our warmest gratitude. We should, perhaps, not have dared so far to identify ourselves with the honour of our profession, as our friend Spooner has done; and yet he has put a case which cannot be easily controverted.

What is the cause of the diminution of the number of our correspondents? Let our friends, let our enemies tell us. We will learn, and gladly, from the one or the other. If the fault rests with us, let its nature be pointed out, and it shall be repaired. We will not disgrace ourselves by *entreating*, we perhaps have no right to *demand* a reply; but we await it, and we think that we shall not be disappointed.

Our cover contains the list of those who have corresponded with us. What is become of them? Has our zeal abated? Have we deviated from our plan? Have we, in the minutest particular, been traitors to the cause in which we embarked? Or are our correspondents becoming lukewarm, apathetic?

It boots not to tell of the motives which first influenced us to take the position which we have now more than four years occu-

pied, whether the pardonable wish to obtain some literary reputation, or the noble ambition, to promote the improvement of that useful profession in which we had embarked our hopes and our fortunes. By one motive we should have been bad calculators if we had been influenced,—the hope of the more *solid* but not more valuable remuneration of literary labour. In the state of our profession, some years must have passed before that could have been realized. Four years have passed, and that hope would at the present moment have been utterly disappointed. We have, however, been rewarded. We have for a while, a little while indeed, rallied around us a Brown, a Cartwright, a Castley, a Dick, a Field, a Goodwin, a Green, a Hales, a Henderson, a Karkeek, a Kerr, a King, a Langworthy, a Molyneux, a Percivall, a Quick, a Ralston, a Roberts, a Simpson, a Spooner, a Toombs, a Turner, a Wilkinson, a Watt, and many others of equal value. There is scarcely a disease of the horse which they, and many ingenious contributors, have not illustrated, and in the treatment of which they have not effected the most valuable improvement; and as for cattle, their diseases, and the treatment of them, had never before been discussed among veterinarians. There is not a recent publication which has not derived almost all its worth from THE VETERINARIAN: we take the work of Mr. Blaine as an example—an excellent and duly prized one before; but now, in a manner, invaluable, because he has deeply drawn from this source: and if we go to our schools, we boldly claim, as the work of veterinary periodicals, the lengthening of the period of the student's education—the extending of that education, in a greater or less degree, to many a previously neglected but important object—and the modification, or even the abandonment of many a theory, visionary and injurious. These are our rewards, and we prize them. And now, if our former contributors wish that the world should believe that in England alone—the cradle of liberty, the nurse of science—veterinary practitioners have not the ability, or, worse than that, the honest pride to support one poor periodical; if, while we are claiming some consanguinity with the professor of human medicine, they really mean to give him the irrefragable proof that we are unworthy of it, either from absolute incapacity or scandalous

apathy—if they intend that the enemies to the improvement should treat us with increased scorn and derision—why, so let it be.

We have endeavoured faithfully to maintain our post—and we will do so still; we will do so until common prudence warns us, that we are not compelled quite to sacrifice ourselves in a hopeless cause; and then let the disgrace fall, where we would not have it, but whence the stain will never be wiped away.

This is strong language—meant not, however, to offend—and which will not offend, except where we are reckless of the result. We plead not for ourselves, for we should be relieved from much labour, and from some expense; but we plead that cause dear to us all, and which we are convinced our old contributors will not yet suffer to perish.

The following strange account has lately gone the round of the newspapers:—

Disease amongst Race Horses.—For some time past, a disease of an inflammatory, and, apparently, also of a contagious nature, has shewn itself amongst all descriptions of horses, and vast numbers have died. The training stables of Mr. Scott, at Malton, Yorkshire, have been particularly unfortunate. Beaufort, a St. Leger horse, belonging to the Hon. E. Petre, died about a week back. George Walker, Esq., whose horses are trained by Scott, has lost three; viz. Melody, by Jerry, out of Chorister's dam; Caroline, by Partisan, out of Quadrille (both in the Oaks 1833); and a colt by Muley, out of Margrave's dam (in the Derby 1833). Mr. Bower has also lost a colt, by Figaro, out of Chancellor's dam; the value of these five horses cannot be estimated at less than £4000. Mr. Walker has also lost seven valuable cart-horses by this strange disorder. In all the fatal cases death has ensued within forty-eight hours; and on opening the bodies a quantity of water has been found about the heart. If the complaint should reach Newmarket, the mischief will probably be very extensive, as there are now five or six hundred horses in training there, besides brood mares, yearlings, foals, &c.

There has been, for some months past, an unusual mortality among horses, in almost every part of the kingdom, although we cannot say that many cases bearing any resemblance to these have fallen under our notice. The epidemics which occasionally prevail, so different in different years and different localities,

form a very important and utterly neglected subject of inquiry. Mr. Percivall has, in the present number, ventured to trace the character and proper treatment of the disease in the form under which it occurred in his practice. If other surgeons would favour the public with the result of their experience, we might obtain a valuable history of these periodical complaints, and their connexion with certain varieties of atmospheric influence, and certain peculiarities of soil and country, and thus gradually arrive at a more scientific and successful mode of treating them. We invite the attention of our friends to this; and we thank Mr. Meyer for his valuable account of the late epidemic among cattle; it acquires peculiar interest in connexion with that epidemic or contagious malady which has carried off so many human beings.

Affections of the mucous membrane of the intestinal canal have lately been almost unprecedentedly frequent and fatal among dogs; and there has been a peculiarity in the character and copiousness of the bloody discharge, and rapid prostration of strength, and speedy death, to which our experience supplies us with no parallel.

The annual open dinner of the Veterinary Club will take place on Thursday, May the 10th. No letters or cards of invitation will be issued; but the members of the club will be most happy to see any of their professional brethren who will send a letter or notice to the secretary, at the King's Arms Tavern, Bridge Street, Westminster (at which, and at half past five o'clock, precisely, the dinner will be held), on or before the 8th of May, signifying their intention to be present. It will be pleasant and useful to draw yet closer the bands of union between the members of a profession, widely scattered, and hitherto too discordant.

The Sporting Department.

The late Steeple Chase between Moonraker and Grimaldi.

Although we are somewhat inclined to regard the *steeple chase*, as "a relic of ancient fool-hardiness and cruelty, and an exhibition not very creditable to the head or the heart of him who is engaged in it," yet the one which was lately decided in the neighbourhood of St. Albans excited so much interest in the sporting world, that we are induced to preserve a record of it.

Moonraker, the property of Mr. Elmore, a respectable horse-dealer, had lately won two sweepstakes of this kind. The owner was proud of him, the proprietors of the vanquished were jealous, and it was determined to get up a third chase, for which some of the most celebrated hunters of the south would probably be entered, and in which the real merit of this horse would be fairly put to the test. The stakes were ten guineas—the distance four miles—the weight eleven stone, seven pounds—the last horse to pay the second horse's stake, and the winner to be sold for 400 guineas, if demanded within three hours after the race. Twenty horses were entered, Mr. Osbaldeston chosen umpire, and Mr. Coleman (of the Turf Hotel) clerk of the race, Thursday March the 8th the appointed day, and the course from Ellen Brook Green, on the borders of Colney Heath, to Mr. Coleman's paddock.

Among the horses were, Mr. Elmore's Moonraker, ridden by Mr. Seffert; Mr. Evans's Grimaldi, by Mr. Mostyn; Captain Horne's Lucifer, by the owner; Mr. Thomas's Corinthian Kate, by Captain Beecher; Mr. Cox's Rough Robin, by Mr. Osbaldeston's whipper-in; Mr. Orbell's Bloomfield, by Mr. Codrington; Col. Charitie's Napoleon, by Mr. Crommelin; Mr. Neville's Hotspur, by Mr. Bean; Mr. Thornhill's Creeper, by Mr. Patrick; and Mr. Lelly's Bounce, by Mr. Parker.

Moonraker and Grimaldi were the favourites: the bets were three to one against each of them, and six to one against Creeper and Bounce. Even betting these four against the field.

At half past three they went off in gallant style. It would be difficult at such a moment to say which had the advantage. Lucifer, however, led the way, and the rest followed at a round pace. The first two or three fences were well taken; but in the third field, Captain Beecher, on Corinthian Kate, had a fall, and his mare ran half across the meadow before he could catch her and

regain his seat, his bridle being then all on one side. He had previously got the lead, Rough Robin close behind. The others were all well up, but Moonraker and Grimaldi seemed waiting on each other in the rear. We cannot presume to give the position of each horse in the animated struggle which followed. Many of the leaps were admirably taken, and all seemed influenced by the same desire of emulation. Some got clumsy falls, and were unhorsed; and others declared off the grand contest, seeing they had not a chance. The most interesting point was the struggle for turning the angle at the farm-house, from which a view of the distant goal could be obtained. Here Moonraker asserted his supremacy, and came gallantly round the corner, close followed by Corinthian Kate, Grimaldi, Bloomfield, Napoleon, and some others well in their wake. The burst down the hill was beautiful, and the general cry was—"Moonraker is winning easy!" Three or four leaps were well taken, when Moonraker, in surmounting the hill, came to the third fence from home, nearly abreast with Corinthian Kate: they both cleared well; but Moonraker swerving a little to the left, so as to clear the flag tree, Corinthian Kate came close to him on the right, and in the next fence had rather the advantage in making her leap. The call was now rather for Kate; but in a few strides Moonraker regained his superiority, and darting with unabating vigour at the last fence, cleared nearly seven yards at the spring, and shook his rider most fearfully. Kate now fell off, but Grimaldi, who had been waiting for the last struggle home, and who had taken his leaps beautifully from the first, rushed out and challenged Moonraker. The struggle up the hill to the paddock was desperate—nothing could be finer; both sprang to the bank at the same moment, but Moonraker had the advantage by half a neck, and was pronounced the winner. It was thought, had Grimaldi made play sooner, the issue would have been different. The struggle with those left immediately behind was between Corinthian Kate, Napoleon, and Bloomfield. The former two came in third and fourth. An accident prevented Bloomfield from getting a better place—he and his rider having fallen into a chalk pit which unfortunately lay in the way, and was unperceived till too late by Mr. Codrington. Much credit is due to Captain Beecher for the manner in which he rode Corinthian Kate; and, making allowance for his early mishap, it will be seen that his chances of victory were of no common character. Grimaldi was also admirably ridden by Mr. Mostyn, who complained of his path being crossed by some horsemen at a most important point. Of Mr. Seffert's management of Moonraker we cannot speak in terms of too much praise. Mr. Codrington

also rode admirably. The remaining competitors came galloping in at intervals: some of them at a slapping pace, anxious to avoid being last—a distinction which was awarded to Hotspur, who lost both his rider, his bridle, and himself. Several of the riders in coming in shewed convincing marks of having come in contact with "mother earth." Some few accidents occurred in the last meadow, from the injudicious rush of the crowd, horse and foot—some were thrown down, but we did not hear of any serious accident.

On going to scale there were, of course, various opinions as to the merits of the different horses, and the superiority of Grimaldi over Moonraker. This led to fresh challenges; and Mr. Osbaldeston proposed making a match between Grimaldi and Moonraker for £500, or between one of his own horses and Moonraker, to run in Leicestershire, for a like sum—undertaking to ride both races himself, if he were well.

The four miles, as far as we could collect, were performed in fifteen minutes and a half.

After an excellent dinner at the Turf Hotel, at which most of the riders and owners of the horses were present, Mr. Osbaldeston, Mr. Evans, and other gentlemen came in and challenged Mr. Elmore to make a match for Moonraker to run Grimaldi for £500, in Leicestershire or Northamptonshire. Mr. Elmore, however, refused to go so far from home; and, in fact, did not seem to like making a fresh match so soon, as it was found that Moonraker had not been quite so well as he might have been after the race. After some discussion, however, Mr. Osbaldeston agreed to give Mr. Elmore £50 to make the match. Articles were then drawn and signed: the match to come off in the neighbourhood of Harrow, on the 13th. The distance four miles across the country, and each rider to carry eleven stone seven pounds. It was understood that Mr. Osbaldeston would ride Grimaldi. Heavy betting, Moonraker rather the favourite, took place. Great confidence, however, was expressed in the powers of Mr. Evans's Grimaldi. Some thought, had he taken the last leap instead of turning the corner of the hedge, by which he severed from the direct line, he would have had the lead. On the other hand, it was asserted that Moonraker never once required the spur or the whip, and had a reef to let go if necessary.

On the 13th, both horses were allowed to be in excellent condition, and "nothing the worse" for their Thursday's exertion. Grimaldi had a decided advantage in youth and freshness, and came up from Warwickshire with an excellent character. He is six years old, by Grimaldi out of Miss Bab, by Highland-fling, out of Lady Bab, and bred by Mr. Clifford, of Gloucestershire.

By Mr. Clifford he was sold, at four years old, to Mr. Wynnet; by that gentleman sold to Mr. Bray, and from Mr. Bray he came into the hands of Mr. Evans. His colour is grey. Moonraker is what is called "a dark" horse; that is to say, neither his sire nor dam is known. He was originally bought, we believe, at thirty-five guineas; and, after doing some excellent work, was again sold for eighty guineas. He was sent up from Warwickshire as nothing but a "good one," although he had seen an immense deal of service; and his fame was established by winning two steeple races in succession, in the neighbourhood of St. Albans, which was followed up by his third victory on Thursday week. His colour is bay, but his age is not known. He is a high-couraged horse, strong and willing in a heavy country, and an excellent fencer; stopping at nothing, and taking his leaps with uncommon clearness and precision. The distance agreed to be run was four miles, the precise ground to be chosen by the umpires—Colonel Charitie, on the part of Moonraker; and Mr. Meyrick, on the part of Grimaldi.

In the course of the morning the umpires met and proceeded to select the course, which was finally fixed to be from a field on Mr. Copeland's farm, near the seven-mile stone, on the Edgeware-road, down a gradual descent across a flat country, at the foot of Harrow Hill, into a field in front of a Mr. Hawkins's farm-house, at Harrow Weald. The fences were by no means difficult, and the ground, although heavy (principally meadow or pasture), partook more, as was remarked by some old fielders, of the character of a race-course than a laborious hunting country, and therefore more favourable, in their opinion, for Grimaldi, who was supposed to possess more speed than strength. The approaches to the scene of action presented a lively spectacle during the forenoon. The roads were thronged with vehicles of every description, and an immense body of horsemen, who spread themselves in all directions over the fields, breaking down hedges, and rendering the small leaps there were still more easy. Harrow was overflowing, and here innumerable groups waited till the news arrived of the precise route to be taken. All then proceeded to take up the stations best calculated to afford a view of the contest. The principal body of the spectators concentrated in the neighbourhood of Mr. Hawkins's farm, keeping the winning flag in view.

At length, the important ceremony of weighing took place; and the horses were sent to the starting-post. Mr. Osbaldeston had but little to add to his ordinary weight to reach the stipulated amount of eleven stone seven pounds, while Mr. Seffert had nearly sixteen pounds of "dead weight" attached round his

loins in belts. Both wore silk jackets and jockey caps. It was after five o'clock before they mounted and prepared for the race. In the interim, the whole line they had to take had been marked by flags at convenient distances. The dusk of evening, with a slight fog, had supplanted the previous brightness of the day, and many had actually quitted the ground, giving up all hope of their promised amusement. At last the word was given, and off went the competitors at a slashing speed. Moonraker took the lead—Grimaldi, as had been previously announced by Mr. Osbaldeston, waiting close upon him. About a mile and a half or two miles from the starting-post, Mr. Seffert, after taking his leap, swerved towards a stile, but again cut in, making an angle. Mr. Osbaldeston, on the contrary, kept the direct line, and, he says, accidentally came in contact with Mr. Seffert as he again took up his straight running. We are informed that Mr. Seffert complained of this, and exclaimed, that, whatever was the result of the race, he should mention the fact. He then went on, still waited on by Grimaldi, till within half a mile of home, where, after crossing a fence, he went towards a gate, expecting to get a more direct line for the destined goal; while Mr. Osbaldeston quickened his speed, and dashed straight forward. Mr. Seffert found he was mistaken, and again got into the field with Mr. Osbaldeston, who had, by Mr. Seffert's error, got nearly a hundred yards a-head. Every nerve of Moonraker was now urged to its utmost to regain the lost ground; but, from thenceforth, his chance was lost. Grimaldi had got the lead, and kept it; and, in coming through a gap in the corner of the last field, his success was put beyond a doubt. Moonraker followed, evidently much distressed, but incapable of additional exertion. Mr. Seffert seemed rather to support than to push his steed; and seeing Grimaldi cross the "rubicon," he pulled up; Grimaldi being pronounced, by acclamation, the winner by several lengths.

OBJECTION TO THE STAKES BEING GIVEN UP.

All parties, as by previous agreement, next returned to Mr. Elmore's farm, towards which the horses were led; and here, on the umpires being called, Mr. Seffert preferred his complaint, of having been ridden against by Mr. Osbaldeston, and appealed to Mr. Osbaldeston, whether that had not been the case. Mr. Osbaldeston, we understand, admitted the fact; but stated most distinctly that he could not avoid it: it was perfectly accidental, and solely arising from the angle which Mr. Seffert had made.

Mr. Elmore said he had no desire to make a wrangle, or to object unnecessarily to the stakes being given up; nevertheless, as his rider had made the complaint, he would leave it in his

hands, and to the umpires, to come to that decision which seemed to them most consistent with justice to all parties.

At a subsequent meeting documents were produced as to the circumstance by both parties, and the matter being afterwards preferred to Col. Anson, he decided that Mr. Osbaldeston was entitled to the stakes.

STATE OF BETTING FOR ENSUING RACES.

RIDDLESWORTH.

6 to 4 agst. Pastille
4 to 1 agst. Brother to Cloudesley
8 to 1 agst. Mouse.

DERBY.

8 to 1 agst. Ld. Exeter's Beiram
8½ to 1 agst. Ld. Exeter's Spencer
12 to 1 agst. Ld. Chesterfield's Non Compos
13 to 1 agst. Mr. Dilly's Margrave
16 to 1 agst. Lord Exeter's Byzantium
18 to 1 agst. the Duke of Grafton's Pastille
20 to 1 agst. Mr. Vansittart's Dariolletta
22 to 1 agst. Mr. Ridsdale's Trustee
25 to 1 agst. Mr. Turtle's Gratis
25 to 1 agst. Mr. Chifney's Emiliana
33 to 1 agst. Ld. Mount Charles's Caliban
40 to 1 agst. Ld. Lowther's Bogle
40 to 1 agst. Mr. Dundas's Colt
40 to 1 agst. Mr. Roberts's Brother to Cloudesley
3 to 1 agst. Ld. Exeter's Lot
2 to 1 Margrave agst. Gratis
11 to 3 agst. Beiram and Spencer
100 to 1 agst. Beiram and Advance winning the Derby, Oaks, and St. Leger.

OAKS.

8 to 1 agst. Ld. Exeter's Advance
8½ to 1 agst. Capt. Byng's Dryad
9 to 1 agst. Emiliana
12 to 1 agst. Eleanor.

ST. LEGER.

Even between Beiram and Margrave.

Veterinary and Sporting Jurisprudence.

Liability of Commission-Horse-Dealers.

Hagart v. *Inglis.*

A case was lately tried at Edinburgh, which excited much interest amongst the sporting horse proprietors in that neighbourhood. The plaintiff was Mr. Robert Hagart, of Athol-crescent; and the defendant Mr. G. Inglis, livery-stable keeper, in the same city. The action was brought to recover the value of a horse which Mr. Hagart had left at Mr. Inglis's stables for sale. At the beginning of the hunting season (Oct. 1830), Mr. Hagart received a message by a lad, who came from Inglis's stables, stating that he had been sent to say that the fox-hounds were to

be at Arniston Gate on the following day (Saturday), and that as Inglis was to be there himself, it would be a good opportunity for his horse to be seen, or shown off, with a view to his being sold. In consequence of this message, and agreeably to Inglis's recommendation, the plaintiff gave his permission, expecting, of course, that Mr. Inglis would see his horse properly taken care of, and that he would merely allow him to be seen, or shown off, with a view to being sold. At this time Mr. Hagart's horse was not in hunting condition. It appeared, however, that a celebrated English Jockey, named Templeman, had come down from England, and was living with Inglis. The latter, no doubt, anxious to shew his English friend every attention, and desirous that they should enjoy a good day's hunting, gave him Mr. Hagart's horse, and they started together on Saturday morning, the 30th of October, 1830, to meet the hounds at Arniston Gate. Inglis and Templeman had got only a few miles from Edinburgh, when they were overtaken on the road by Mr. Francis Grant, of Kilgraston. Templeman was then riding Mr. Hagart's horse. Mr. Grant, from seeing the condition the horse was in, cautioned both Inglis and Templeman, that they would kill the horse if they did not take care of him in the hunting field, for he was much too fat. Another gentleman, well acquainted with horses, overtook Templeman and Inglis on the road, viz. Mr. Samuel Wordsworth, junior, W. S., who remarked the condition of Mr. Hagart's horse. It was then sweating very much, before they were half way to Arniston Gate, which shewed that the horse was in no kind of condition for hunting. Inglis rode along with his English friend all the way out; he heard the repeated cautions given that Mr. Hagart's horse would be killed if not taken care of; and he must himself have seen him very much sweated before they reached Arniston. Notwithstanding all this, he permitted Templeman to hunt Mr. Hagart's horse throughout the whole day. There were several runs, and the day's hunting was a very severe one, even for horses in condition. Inglis and his friend Templeman returned to Edinburgh in the evening, after the day's sport; and Mr. Hagart's horse was not long in the stables before he died; and his death arose from over-exertion and the severe day's work.—On the part of the defendant, it was contended that the greatest possible care had been taken of the horse in the hunting-field; that he was expressly sent there by the plaintiff's desire, with a view to sale; and that he had not been overworked. On the contrary, Templeman was a man of very light weight; he was jockey to the Duke of Leeds, an experienced horseman, capable of managing a horse in the most judicious way. He took short cuts upon all occasions, and was particularly careful

throughout the day. In the afternoon he returned with Mr. Inglis, accompanied part of the way by Williamson, the Duke of Buccleuch's huntsman. On the way home, they stopped first at Vogrie, and then at Dalkeith; and it was attempted to be proved, that at both these places the horse shewed no symptoms of distress.—The Lord Justice Clerk summed up. He commenced by stating, that as to the legal principle which must govern the case, there could be no doubt. A person intrusted with the property of another, for sale on commission, was bound to take every due care of that property. Any misconduct or negligence on his part, would render him liable for the loss thereby sustained. It was clearly proved, that Inglis and his friend Templeman (who had been residing in his house) started together on the Saturday morning for the hunt; that they were overtaken on the road by a gentleman of great experience, who told Inglis and Templeman they would kill the horse if they did not take care of him. After what Inglis saw of the state of the horse on the road out, it was his bounden duty to have prevented Templeman entering the hunting-field, and following the hounds. But it appeared from Templeman's evidence, that Inglis never told him that the horse was to go out merely to be seen, for the purpose of being sold. Templeman went out to hunt—to enjoy the pleasures of the field—and he swore that he hunted just like the others (excepting that he sometimes took short cuts), using his own discretion. Again, it was clearly proved, that the horse was not in hunting condition, which fact was well known to Inglis; and this ought to have suggested the greater care on his part. On coming to Arniston Gate, he should have allowed the horse merely to be seen by the gentlemen present—he should not have permitted Templeman to enter the hunting-field when the fox broke cover. Then the evidence of Mr. Dick, veterinary surgeon, put it beyond all doubt that he horse had died from over-exertion during the day's sport. Under these circumstances, his Lordship had no doubt what verdict the Jury would come to.—*Verdict for the Plaintiff.*

Laws of Starting.

Jones v. *Breary.*

This was an action brought at the Derby Assizes, against the defendant, the clerk of the Derby race-course, in his character of stake-holder, for money had and received to plaintiff's use. The facts were these:—At the last Derby races, which took place in the month of August, Mr. (now Lord) Cavendish and Mr. Thornhill, acted as stewards. When "The Dunnington-park

and Fatbuck Stakes" was run for, Mr. Thornhill told the jockeys, eight or ten in number, as they were about to start, that they must be ready within ten minutes after they were weighed, to start for the second heat. The first heat was won by a three-year-old horse of Mr. Beardsworth's, named "Champion." Few, if any, of the horses were ready at the appointed time for starting for the second heat. At nineteen minutes after the first heat, Mr. Thornhill gave the word "Off," there being then only five horses at the starting post. Of these the plaintiff's horse "Tommy Tickle," which was aged, came in first. Although the stewards are masters of the race, it is usual for the clerk of the course to start the horses, and it is also customary to allow an interval of half an hour between the heats, particularly for young horses, which take a longer time to recover their wind than aged ones. This heat, therefore, having been objected to as not being fair, the defendant refused to weigh the rider of Tommy Tickle; and ultimately the stewards decided that it was no race, and must, therefore, be run again. The horses accordingly started a third time, when Champion came in first, and a mare named Gazelle came second, Tommy Tickle coming in third. Under these circumstances, it was contended that Tommy Tickle won the race, because the second start, it was contended, was fair; and neither Gazelle or Champion having run that heat, they must be taken to be distanced, and therefore disqualified from running the third heat, thus leaving Tommy Tickle the winner of the third as well as of the second heat. It was, however, admitted by plaintiff's witnesses, that the usual and reasonable interval allowed between heats, at all races throughout the kingdom, was half an hour; and also that it was customary for the clerk of the course, and not the steward, to start the horses; besides which, it was stated, that the stewards were the proper persons to judge of the fairness of a start; and in this case they had decided that the start was not fair, and that therefore the second heat should be run over again. Upon these facts, Mr. Baron Bayley was clearly of opinion that the plaintiff must be nonsuited. If the stewards deviated from the usual course, they were bound to give notice of such deviation to the owners of the horses; and they were, moreover, bound to allow a reasonable time for young horses, as well as old, to recover their wind. On the present occasion they had not done so, and they had subsequently decided that they were wrong, and that the heat must therefore be run over again. In any point of view, there was no pretence for saying that the plaintiff was entitled to the stakes. His Lordship would, therefore, beg leave to suggest, that the next person called should be Mr. Michael Jones [*a laugh.*]—Mr. Jones was accordingly nonsuited.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—*Horace.*

Traité Elémentaire de Matière Médicale et Pharmacologie Vétérinaire: par M. Moiroud. Paris, 1831.

[Continued from p. 169.]

Purgatives from the Vegetable Kingdom.

Aloes.—By this is understood the concrete juice, or resinous extract, which is procured from several species of plants of the genus *aloe,* and particularly the *spica* and perfoliata. They used to be distinguished as socotrine, hepatic, and caballine; but they are now better known in commerce by the name of the country whence they are derived, as the Cape, the East Indian, the Barbadoes, &c. The socotrine used to be considered as the purest, containing 68 parts in a hundred of the bitter principle, soluble in water and alcohol, and 32 parts of resin, with some traces of gallic acid and essential oil. The hepatic aloes contained only 52 parts of the bitter principle; and the caballine, or horse aloes, less of the bitter principle, and more of the insoluble resin.

In the bitter principle resides the smell, the taste, and the purgative property of the aloe: the resinous principle is comparatively inactive. Long submitted to the test of boiling, a solution of aloes loses much of its activity; and this explains the reason why caballine aloes, which are the produce of boiling, should be so ineffective or uncertain. It is for this reason that the horse aloes has long been banished from the practice of respectable veterinarians.

Of all the purgatives, aloes is that which is most frequently employed for horses: and it merits the preference that has been accorded to it; for it is generally certain in its action, although somewhat long in producing its effect. Aloes seems to glide over the surface of the stomach and small intestines to produce its chief action on the larger intestines, the peristaltic motion of which it singularly increases.

Its dose for the horse, when employed alone, is from one to two ounces. Administered in a smaller quantity, as from one to two drachms, it acts as a tonic; it rouses the action of the stomach, excites the appetite, and favours digestion. It also acts as a vermifuge.

It is particularly recommended to overcome obstinate constipation, unaccompanied by intestinal irritation; or when it is proposed to produce a powerful revulsion on the digestive canal, as in chronic inflammation of the mucous membrane of the respiratory passages.

It is counter-indicated in all acute inflammations, and especially in those of any of the abdominal viscera. It should be employed with much caution in animals of an irritable temperament.

It may be administered in the form of ball or electuary, but the preferable mode is that of solution in warm water. If it is wished to associate it with other purgatives, they should be selected from among the mildest, and those of quickest action, that the digestive passages may thus be prepared for the influence of the principal medicament.

When administered in injections, the effect of aloes is uncertain.

In whatever manner it is administered to cattle, it is exceedingly uncertain. Gilbert gave six ounces to a cow seven years old, in an infusion of four ounces of senna, without producing any appreciable effect. The same quantity given to another cow, in the veterinary school at Lyons, produced febrile action, but did not purge.

In sheep it is equally inert. An ounce and a half was given without producing any purgation; the exhibition of two ounces was followed by death twenty-seven hours afterwards, and without purgation.

When applied externally it is exceedingly useful. When sprinkled in the form of powder on fistulous wounds, or wounds penetrating into the joints, or of the sheaths of the tendons, or of the salivary glands, it agglutinates and stops the discharge, and at the same time, by its stimulating property, disposes the wound to heal.

Dissolved in rectified spirit, it constitutes a tincture much in use among veterinary practitioners in the healing of sluggish wounds: it is at once a detersive and a desiccative. It is proscribed when we wish to hasten the suppuration of an abscess or wound, for it will retard that process without producing any countervailing benefit.

Gamboge.—According to Daubenten, this is a useful purgative for sheep affected with the rot; but it must be given with caution, for two drachms have produced fatal purgation. We, however, believe that it is an uncertain and a dangerous purgative, both for the larger and smaller herbivorous animals. When given to a cow in the dose of an ounce and a half, it produced very little effect; but double that quantity being afterwards given to the same cow, it produced dysentery, which lasted seventeen days.

We have given from six to twelve drachms to many horses. It has produced dejections a little softer and more frequent; but at the same time its exhibition has been accompanied by shiver-

ing, irregularity of the pulse, depression, and various other alarming symptoms.

Jalap.—This is a drastic purgative, with regard to carnivorous animals. Its principal action is on the small intestines, and when administered with prudence, rarely gripes. It has little power in herbivorous animals. Bourgelat had remarked this, and Gilbert has given two ounces at once to a sheep, without effect. We have given two and three ounces, made into balls, to horses, and the only consequence has been, a more abundant flow of urine.

It is given to carnivorous animals either incorporated with honey, or in the form of infusion, or concealed in the food. The dose for the dog or the cat varies from ten grains to a drachm. The swine will require double that quantity.

The resin of jalap is much more active than the powdered root; but its price prevents it from being generally used. The action of the tincture is more uniform and less irritating than that of the root.

Scammony.—This is a drastic purgative, which we should only employ to produce a powerful revulsion to the intestinal canal; but as the scammony of Aleppo is very dear, and the other kinds are adulterated or uncertain, it is rarely used for the larger animals. Gilbert gave six drachms to a sheep, which died twenty days afterwards without being purged. The dose ought not to exceed three or four drachms for the larger animals, and twenty or thirty grains for the carnivora.

The Oil of the Croton Tiglium.—The croton oil is the most violent purgative that we are acquainted with. Two drops will generally purge the human being, but twenty or thirty drops are necessary for the horse. Twelve drops injected into the veins of the horse produce alvine dejections in a few minutes. Thirty drops administered in the same way have caused a violent intestinal inflammation that has speedily terminated in death. Thirty-six drops, combined with an ounce of aloes, and an infusion of two ounces of senna, and given as a drink, have been attended by the same result in a strong draught-horse. The larger intestines are oftener and more violently inflamed than the jejunum or ileum.

Fifty drops having been dissolved in alcohol, and well rubbed into the inferior part of the abdomen, produced considerable swelling in a few hours. On the morrow, the evacuations were three or four times more abundant than in their natural state; but the matter ejected preserved its natural consistence. This effect continued nearly two days.

A little while afterwards the cuticle on the belly peeled off, and there was a sore resembling that produced by a blister. For

a few days the animal exhibited considerable uneasiness and depression, but this gradually went off.

Notwithstanding the danger that attends its inconsiderate administration, it is a useful purgative when prudently given. It may be given dissolved in alcohol, or made into a ball with powder of marsh-mallow root and honey.

Colocynth seems to be inert as a purgative in the horse. Although a few grains of it will purge the human being violently, four drachms have been given to a little horse without producing the slightest effect.

Bryony, Hedge Hyssop, Black Hellebore, and Euphorbium, might be added to the list of purgatives; but the former are rarely employed by the practical veterinarian, and the latter are employed externally as rubefacients.

Extracts.

Cholic followed by Rupture of the Colon in a Horse.

By M. Berger.

If the inflammatory diseases which in the horse have their seat in the abdominal cavity, and are known under the general names of colic and gripes, ever merit the first of these designations, it is unquestionably when the colon is affected; but custom has given it a more extensive acceptation, and "all pains in the intestinal canal, whether primitive or secondary, and whatever be the cause, are called by this name*." "In general, we know that a horse is attacked with the gripes when he lies down and rises almost immediately, is fidgetty and uneasy, and stamps with his fore feet, and does not remain still a moment†."

Veterinarians are of one opinion on the general symptoms which characterize cholic or gripes: they know that the horse abandons himself to violent movements; that he alternately lies down and rises; looks at his flanks, and paws with his fore-feet: the motion of the flanks is often accelerated; he frequently perspires, tries to vomit without being able to accomplish it; and his pulse varies according to the nature of the case, &c.

"With regard to specific symptoms," says Dr. Pariset, "that is to say, those proper to characterize such or such particular cholic, they are sometimes very evident, at others hardly discoverable; whence it follows, that the diagnostic of each is very difficult to establish; and as the diagnostic is of indispensable

* Bouley, jun. † Lafosse Dictionnaire d'Hippiatrique.

use to throw light on the proper treatment, it follows that the treatment is regulated with much difficulty*."

This observation is as applicable to veterinary as to human medicine.

For some time past this affection (cholic) has been considered as a particular state of the intestinal canal, a disease always the same, and identical in every case. Specifics were, therefore, sought for; and it was from the too numerous class of irritants that these remedies were selected. Beside this, every one who performed a cure made a secret of the composition which he had invented, or which his predecessor had transmitted to him; and the works on the art of riding, or farriery, or horse medicine, are filled with similar recipes, strangely compounded, and deserving of eternal oblivion.

Let us hope that in future the numerous observations of veterinarians will distinguish the characters and symptoms of the different species of cholic; and that when they are given to the public by the veterinary journals, these observations confined to the especial consideration of the organ which is affected, and will present to us a more exact and better analyzed description. By this means the diagnostic will be more certain, and the judicious practitioner will be better able to prescribe a rational system of treatment, hitherto very difficult to establish in affections of this kind. He will be able, at the same time, to form a judgment not equivocal as to cases where the lesions are so serious, that the power of the most active medicine would be ineffectual; and thus be aware of the parts really affected, whether it be strangulation of the intestinal tube, a rupture of the diaphragm, or of the stomach, or of any portion of the alimentary canal; as was the case in the horse which forms the subject of the following memoir:—

On the 8th of December 1826, a bright bay horse, aged between ten and eleven, of the German breed, and of good constitution, ridden by a trooper of the company of Croi, went at considerable speed from Versailles to Paris and back again. This horse, which had been in the service of the ordinance for six or seven months, was spiteful to the men, and vicious to all the other horses; and therefore he was never properly broken.

On his return from Versailles he did not eat his corn with his usual appetite, and appeared rather dull; but no notice was taken of this slight indisposition, which is nevertheless a very important symptom, and is almost always the forerunner of those inflammatory diseases which so often affect our large domestic animals.

* Dictionnaire des Sciences.

At nine o'clock in the morning the animal still had no appetite, and refused his oats, which were exchanged for a mash, to which he shewed the same repugnance. In the course of the same day the right hind leg swelled a little from the fetlock to the hock. The animal, however, did not seem to feel any difficulty in standing on it.

I did not see him until ten o'clock; and the following are the symptoms which I observed:—

The swelling which had risen on the leg was hot, although not very painful; the horse was not lame; the pulse was small, hard, and accelerated. The animal was brought to the infirmary at nine in the morning, and *water slightly nitrated was given him; the leg was frequently bathed with emollient lotions; drinks composed of a decoction of barley and honey were given; and several emollient clysters were administered,* but they were returned without any mixture of fæcal matter. The atmosphere of the stable was 57° Fah. and a covering of flannel was put on the back of the horse. In spite of these precautions, violent cholics came on about half past twelve: the animal bent his legs, and fell so rapidly, that it was dangerous to approach him. While on the ground, he struggled violently, tried to roll on and to keep himself on his back. He then got up suddenly, but only to fall again, sometimes on one side, and sometimes on the other. When he was on his legs he tried to make water, sometimes the penis was drawn from the sheath, but not a drop of urine was emitted. Perspirations soon appeared on the flanks and under the belly, and about the genital organs. *The antiphlogistic treatment* was resorted to, but did not produce any good effect.

About two o'clock we profited by an interval of calmness *to take six pounds of blood from the left jugular.* Although the opening in the vein was made tolerably large, the blood ran but slowly; it was almost of a jet black hue, thick and oily, such as has been remarked in some intense and very deep inflammatory affections named *charbonneuses* by some authors.

Two or three minutes after the bleeding, the intensity of the symptoms became greatly increased; the pulse was very much accelerated, small and hard; the artery was distended; the perspiration was more abundant; the mucous membranes were livid; the eyes dull and sunken in their orbits; the mouth partly filled with a frothy saliva, &c.; and although this serious affection was rapidly destroying the animal, *his flanks were scarcely agitated.*

I believe it proper to notice, that one of the general symptoms which characterize colic in the horse, was not manifested in this animal, nor in two horses, on opening which one was found to have the stomach ruptured at its large curvature, and in the

other there was a rupture of the diaphragm in its aponeurotic expansion. I mean the animal stamping and beating the ground with his fore-feet.

Post-mortem examination.—It was opened within an hour after death, and the following lesions were perceptible :—

The cranial cavity.—Nothing particular, excepting a slight redness of the membranes on the side on which the animal had lain.

The thoracic cavity.—The left lung contained several tubercles, and a slight suppurative ulcer existed at the point of the little lobe; the left lung was much congested, from the animal having lain on that side.

The abdominal cavity.—About two pints of bloody serosity were found in this cavity. A large extent of the exterior surface of the colon, at the part where this intestine takes a pyramidical form and describes the gastric curvature, was of a violet colour, and the floating part of this viscus had twisted round itself, so as to form a strangulation, two inches and three quarters from the place where the cellated structure commences, in which the dung-balls are formed.

This obstacle stopped the passage of the contents of the intestine, and prevented them from reaching the rectum. The mesentery was turned back on itself at this place, in the same manner as the colon, without being torn. On following the course of this intestine on the side of the cœcum, it was found to be ruptured at its gastric curvature, near the place where it suddenly decreases in size. This rupture, which was about five inches and a half long, was situated between the fleshy bands of this intestine, and followed their direction longitudinally; its edges were slightly thickened and rounded. More than two pounds of alimentary matter, much diluted and reddened by the blood which had escaped from this opening, was found on the left side of the stomach. The internal membrane of this part of the intestine, from the entangled portion to the rupture, was much thickened, and of a bluish colour. The vascular network and the laminous tissue which unites the villous and muscular coats, appeared to be thickened, and contained a great quantity of thick viscid black blood, which gave the internal surface of the intestine a gangrenous appearance. The alimentary substances which it contained were mixed with a great deal of bloody fluid. The stomach was healthy, and the food contained in it well digested. Nothing remarkable was found in any of the other intestines.

Reflections.—Did the strangulation of the intestine, which in all probability preceded the rupture, exist before the apparent commencement of the illness; that is to say, before the 8th of

December, which was the time when the horse was first perceived to be dull, and not to eat his corn with his usual appetite? or did it not take place until the animal was seized with the continued and violent pains which came on six hours before death? It is most likely that the rupture of the colon may be dated from the latter epoch, and that the strangulation was the consequence of the rapid journey which the horse took, and which was the cause of the abdominal pains.

That which seems to support this reasoning is, that clysters, which were administered from the commencement of the malady until the death of the patient, did not produce any evacuation of fæcal matter.

But that which we principally wish to be remarked in the enumeration of the symptoms that have been described, is the very slight agitation of the flanks. The strangulation of a part of the colon, the inflammation and rupture of a portion of this intestine caused but very little difficulty in respiration. Would it have been the same in an equally serious lesion of the stomach? Observation proves the contrary. When the stomach is deeply affected, there is always such difficulty of breathing, that we are tempted to imagine that the principal malady is in the respiratory organs.

Such a coincidence is explained by the position of the stomach close to the diaphragm, and pressed upon by it, and it is also illustrated by the distribution and function of the pneumogastric nerve; the ingenious researches and theories of Sir Charles Bell with regard to which deserve the profoundest attention. The difference in the greater or less agitation of the flanks, in the diseases of the stomach and large intestines, will be, if properly noticed in different patients, a distinctive mark of the affections of these two classes of organs; the ruptures of which seem otherwise to be attended with the same symptoms.

We have already observed that the animal whose colon was ruptured, did not paw the ground with his fore-feet; that the same was observable with regard to two other horses, one of which had a rupture of the stomach, and the other a rupture of the diaphragm at its aponeurotic expansion. M. Delageutte, a veterinarian, and an attentive observer, tells us more than once that in the more serious affections of the abdomen, or when some of the intestines are ruptured, the horse does not paw with his fore-feet. In a treatise on rupture of the stomach and vomiting in the horse, this veterinarian makes no mention of this symptom; and we may thence conclude, that it does not appear; and that, in different circumstances to those of which we have spoken, it may serve as a diagnostic symptom of the real disease.

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ANATOMY OF THE HORSE.

[Continued from page 184.]

OF THE EAR.

THE ORGAN of HEARING is constituted of divers parts, which have been arranged in two classes—the *external* and the *internal ear*.

The External Ear.

Comprises the *Concha* and the *Meatus Auditorius Externus*.

Concha *.

THE CONCHA or CONCH, is the term we use to denote the *whole* of that part of the organ which is exposed to external view. This consists of a flexible, trumpet-shaped, moveable structure, erected on either side of the summit of the head, for the purpose of collecting the vibrations of sound. Superiorly, the concha (which is ordinarily about six inches in length) grows contracted, and terminates in a point: inferiorly, it presents a broad, firm, circular base or root, so connected with the cranium upon which it rests, as to admit of some considerable extent of sliding motion. Antero-externally appears the aperture or *external orifice* of the concha, ovoid in its outline, and of large dimensions, ex-

* In general form and external appearance the horse's ear bears no sort of comparison with the ear of a man. The external ear of the latter, altogether, has got the appellation of *pinna;* and on examining the surface of a well-formed human ear, we perceive five eminences, the *helix*, *antihelix*, *tragus*, *antitragus*, and *lobula;* and three cavities, that of the *helix*, *fossa navicularis*, and *concha*.

On the present occasion I have (after the manner of the French Anatomists) adopted the term *concha* as an appellation for the *whole* external ear: its literal signification (a *shell*) bearing out very well this extended application of it. The general cavity, or interior of the external ear, I call the *conchal cavity;* and the cartilage, which more particularly gives this shell-like or trumpet-form to the external ear, the *conchal cartilage*.

tending from the point down to within an inch of the base: it is broader above than below, and is terminated inferiorly by a rounded angle. Internally, the concha exhibits a capacious cavity, broadly exposed by the external orifice; but ending below, at the back part, in a sort of chamber or *cul-de-sac*, in front of which is the funnel-like entrance to the meatus auditorius. The sides of the conchal cavity are marked by several longitudinal grooves or furrows, separated by irregular salient ridges; and the whole is so thickly clothed with long downy hair that the cavity in some horses seems to be almost choked up by them.

Composition.—The concha is composed of three *cartilages*, connected and attached by *ligaments* and *muscles*, and enveloped within an *external* and an *internal covering of common integument*.

THE CARTILAGES OF THE EAR, fibrous in their structure, are the *conchal*, the *annular*, and the *scutiform*.

THE CONCHAL CARTILAGE (so denominated from its giving shape to the concha) is the largest of the three, constituting the entire upper or trumpet-shaped part of the ear. In its detached state it represents a hollow cylinder very obliquely detruncated along its outer side, in which defective part is formed the external orifice. Its superior end or *apex* runs into a point: the *base* or inferior part bulges posteriorly, forming the chamber aforementioned; while anteriorly it is elongated into a bifurcated process of a semicircular form, which assists in the formation of the meatus auditorius. All the muscles but two, moving the external ear, are attached to this cartilage*. By them it is attached to the cranium, and also, as well as by ligamentous expansion, to the cartilage next to be considered.

THE ANNULAR CARTILAGE, ring-like in its shape, surrounds the auditory process of the temporal bone, in which situation it is embraced by the lower end of the conchal cartilage, the two being connected by ligamentous substance. It forms the entrance or beginning of the meatus auditorius externus.—Its use appears to be, to admit of the motions of the external ear, and, at the same time, preserve the meatus from sustaining obstruction or interruption in its canal in consequence of such movements, whereby sound might be checked or arrested in its way to the interior.

THE SCUTIFORM, OR TRIANGULAR CARTILAGE (wrongly called *triangular*, however, since its form bears a nearer approach to an *oval*, flattened), is situated at the inner and fore part of the base of the conchal cartilage, reposing upon the temporal muscle. It gives attachment to several of the muscles moving the ear.

* Vide page 84, "Auricular Region."

THE SKIN covering the ear, although continuous with the other common integument of the body, exhibits within the cavity of the concha a comparatively thin and delicate texture. It becomes very thin and dry; and adheres to the cartilage by a cellular tissue, dense and compact, and destitute of adipose substance. After having lined the conchal cavity, it ends in a sort of blind pouch over the membrane of the tympanum, to which it contributes an outward layer. Underneath the skin we find numerous follicles, from which oozes a peculiar greasy matter, for the purpose of keeping the parts soft and pliant. Below these follicles there is a second set of glands—the *glandulæ ceruminosæ;* whose ducts open between the roots of the hairs, and issue a sticky bitter matter, which, acquiring consistence from evaporation, constitutes the *cerumen* or wax of the ear. This secretion protects the bottom of the ear from the insinuation of insects, dust, &c. Sometimes it collects and forms concretions, obstructing the passage into the interior.

Organization.—The arteries supplying the external ear are derived from the anterior and posterior auricular branches of the external carotid. Its veins return their blood into the jugular. Its nerves come from the portio dura of the seventh pair.

Meatus Auditorius Externus.

The external auditory canal is the tubular canal leading from the cavity of the concha to the membrane of the tympanum. Its commencement is dilated after the form of a funnel, from which the canal grows contracted, and at the farther end is elongated in the direction of the membrane of the tympanum. In composition, it is partly osseous and partly cartilaginous: the auditory process of the petrous portion of the temporal bone constituting the inner, the annular cartilage the outer part. It is lined by an extension of the skin from the concha, and is plentifully furnished with sebaceous glands*.

The Internal Ear.

This comprehends two parts—the *Tympanum* and the *Labyrinth.*

Tympanum.

The tympanum consists of an irregular cavity, situated within the petrous portion of the temporal bone, having the meatus auditorius externus on its outer side, the labyrinth on its inner. The cavity is lined by a very delicate mucous membrane, though

* In the fœtus a thick whitish substance is secreted by these glands, which answers the purpose of defending the parts against any acrimony in the liquor amnii. After birth, this secretion is discharged along with the subsequent issue of waxy matter.

it contains no fluid; and exhibits several *foramina* or apertures. At one part it has a communication, through the Eustachian tube, with the external air; but the entrance into it through the meatus auditorius is closed by the *membrana tympani*. This semi-transparent membrane is stretched tightly across the termination of the meatus; not, however, after the manner of the parchment of a drum, but funnel-like, a shape into which it is drawn from the attachment to its centre of a lengthened process belonging to one of the little bones contained within the cavity. Two layers enter into its composition—an outer of skin, an inner of lining membrane; which last exhibits so high a state of vascularity as to have been assimilated to the iris*.

Fenestræ.—The side of the cavity facing the meatus externus exhibits a very irregular aspect, and is perforated by two apertures—the *fenestra ovalis* and the *fenestra rotunda*. Between these two perforations is an osseous eminence called the *tubercle*.

The fenestra ovalis (also known as the *foramen ovale*) is an aperture bearing an approach to the fissure of an oval, looking from the cavity of the tympanum into the labyrinth.

The fenestra rotunda (also called the *foramen rotundum*) is likewise an ovoid opening, situated by the side of the tubercle, and communicating (not with the labyrinth, as in the case of the former opening, but) with the scalæ of the cochlea.

Bones.—Arranged along the interval between, and connected with, the membranes closing the external meatus and the oval fenestra are four little bones (*ossicula*), by whose intervention vibrations of sound agitating the membrana tympani are transmitted to the membrane opposite—that closing the fenestra ovalis: for these bones are connected to each other by ligaments, and are so disposed in relation to one another as to offer the greatest mechanical advantages in this chain of communication for the purpose of augmenting the intensity of the vibration. The names of the ossicula are, *malleus, incus, os orbiculare,* and *stapes*.

The malleus (so called on account of its similitude to a *hammer* or *mallet*) is the one most outwardly situated. Its long process, *manubrium* or handle, is attached to the central part of the membrana tympani, which is drawn inward by it into the shape of a funnel. The head of the malleus stands out from its body in an oblique direction, very similar to that of the os femo-

* In the fœtus, the membrana tympani (and, indeed, the tympanum altogether) is very superficially placed; for that which forms the osseous part of the meatus externus in the adult, is a mere bony ring at this period, across which the membrane is extended. This is beautifully illustrated in the cranium of a fœtal puppy now before the writer.

ris; the handle forming an angle with the head and neck, and tapering to its termination against the membrane. From the upper part of the handle, immediately below the neck, issues an acute tapering process; and this is received into a depression in the bone (in which it rests) in the side of the cavity. This process forms the centre of motion of the malleus, and as such it is worthy of remark here, that it originates near its head and at a distance from the extremity of the handle; a point of considerable import in the physiology of hearing.

The incus, though it has received its name from its fancied resemblance to a blacksmith's anvil, bears a much nearer approach in figure to a molar tooth. Answering to the tooth, too, it has a depression upon its surface, adapted to receive the head of the malleus. Like the malleus, it possesses two processes—a superior and short one turned backwards to be let into a depression in the wall of the tympanum; a longer one projected downwards into the cavity, whose extremity is curved a little, and whose point is attached to the os orbiculare.

The os orbiculare is not only the smallest of the *ossicula*, but it is the smallest bone in the whole body. Soemmering disbelieves in the existence of such a bone: but it may, with a little care, be found and demonstrated, although it hardly exceeds in magnitude a grain of sand. It forms the medium of junction and communication between the incus and stapes: through it the joint existing between the two obtains additional freedom and facility of motion.

The stapes (or stirrup-bone) seems to be the most aptly named of them all; since it really possesses much of the form and character of the common iron stirrup. Its base (which is not an exact oval, one side being somewhat flattened) rests against the membrane filling up the fenestra ovalis, to which in figure it precisely corresponds. By a small head at the other extremity it articulates with the os orbiculare.

Muscles.—The mechanism of the internal ear is such as to require in the cavity of the tympanum the presence of four small muscles*; and these operate on the malleus and stapes. They are the—

* Sound is the effect of impression upon the portio mollis of the seventh pair of nerves—the true *auditory* nerve. This impression is produced by vibrations of the air upon the membrana tympani, communicated therefrom by the osseous chain extended between them to the membrane of the fenestra ovalis, and thence to the expanded auditory nerve. Now, these vibrations being once excited, do not immediately cease, but continue succeeding one another in great rapidity; as, in common speaking, every syllable articulated produces a separate and distinct impulse or vibrating motion upon the ear. Consequently, to prevent confusion of sound, or rather

Laxator Tympani.—A very minute muscle, arising from the outside wall, close to the attachment of the membrana tympani, and inserted into the handle of the malleus, near its root.

M. externus mallei vel M. Processus Minoris, is by some denied altogether—at least, to be of the nature of muscle. It arises from the upper part of the tympanum, and is attached by a small tendon to the shorter process of the malleus.

Tensor tympani arises from the side of the Eustachian tube, and is inserted into the handle of the malleus, upon its upper side.

Stapedius.—In the horse this muscle is developed in a remarkable degree. It takes its rise from a little eminence within the tympanum called the *pyramid,* and is fixed to the head of the stapes*.

confused audition, some contrivance was found necessary to put a stop to one vibration before another was communicated. This explains, in general terms, the use of the muscles of the tympanum.

* It may not, perhaps, be considered altogether out of place to make a remark or two here on the motions of the bones of the ear, and on the mechanical advantages derived from their arrangement and relative position. The manubrium of the malleus is, as we have seen, extended downward to be attached to the tympanum, whose every vibration, in course, affects it. The other slender process, issuing from the neck of the bone and abutting against the wall of the tympanum, being much nearer the point at which the impression is received, than the one where the power resides, becomes the centre of motion—the *fulcrum*; so that the bone is set into action upon the principle of the lever. The moving power is applied to the manubrium, the process from the neck becomes the fulcrum, and the head of the bone is the part on which the effect is to be produced; it being a law in mechanics, that in proportion as the distance of the power from the fulcrum or prop exceeds that of the weight or resistance to be overcome, so will prove the mechanical advantage. In the example before us, this distance is *twice* as great; and, consequently, vibrations communicated by the membrana tympani to the extremity of the manubrium of the malleus, will be transmitted by the head of that bone to the incus with twofold intensity.

Again, we perceive the same principle brought into operation in the motions of the incus. One of the processes of this bone is received into a depression in the wall of the tympanum in such manner that the centre of motion proves to be in the direction of a line drawn through the middle of the body of the bone; so that the extremity of the other—its *long* process (to which the orbicular bone is attached)—performs a greater sphere of motion than the part receiving the impression from the head of the malleus; the consequence of which is, that but a trifling degree of motion given to the body of the incus must become very much more perceptible from augmentation before it reaches the orbicular bone.

The os orbiculare appears to have been interposed in the manner it is, in order that an accurate perpendicular impulse might be communicated to the stapes: had this bone not been where it is, the vibration from the long process of the incus must have been transmitted to the stapes in an *oblique* direction, the result of which would have been confusedness and indistinctness in audition.

Eustachian Tube.—The cavity of the tympanum holds a communication with the external air through a canal named, after its discoverer (Eustachius), the EUSTACHIAN TUBE. This tube communicates with the cavity of the tympanum by what (in the dried bone) appears to be nothing more than a fissure, from which, having passed through the petrous portion of the temporal bone, it becomes cartilaginous in its composition, and proceeds for some distance gradually expanding in calibre, until ultimately it opens into the *guttural sac*, formed at the back of the fauces. One side of the tube is clothed by the levator palati and stylo-pharyngeus musles*.

Labyrinth.

The labyrinth, in which are deposited the organs more immediately concerned in the function of hearing, is an exceedingly irregular cavity, comprising the *vestibule, semicircular canals,* and *cochlea.*

The cavity of the tympanum we found contained *air*, having a communication with the atmosphere without; but within the labyrinth we find a quantity of *aqueous fluid,* bedewing the expansion of the auditory nerve †.

The stapes, resting as it does flat against the membrane closing the fenestra ovalis, and receiving these full and distinct impulses, imparts the benefit of them to the membrane, and thus the sensation becomes most impressive and perfect.

* The design of the Eustachian tube appears to be to admit of a free circulation of air in and out of the cavity of the tympanum. Air, from being retained within the cavity, must necessarily become heated and rarefied, a condition in which it is less suitable to transmit sounds with full intensity; and therefore a renewal of it takes place through the Eustachian tube.

† This cavity is provided with a watery (in place of an aeriform) fluid, for three sufficient reasons. In the first place, water adds to the intensity of a vibration in a very much greater degree than air. Formerly it was imagined that sound could not be conducted through so dense a medium as water; but the Abbé Nollet overturned this hypothesis by direct and simple experiment. Every schoolboy knows that two stones struck together under water emit a sound, so far greater than the one created in air, as to be in a degree insupportable to the hearer. Consequently, by the water in the labyrinth the impression made upon the auditory nerve is so much the more intense.

A second reason why the labyrinth should contain water (and not air) is, that sound is so much more quickly propagated by one medium than the other. Through air it vibrates at the rate of 1132 feet in a second; through water, at the rate of 4000 feet in that time. Thus the auditory impression is more suddenly and perfectly disseminated over a cavity filled with water than it would be through one that contained air.

A third reason for placing water here, consists in its not being nearly so expansible a fluid as air, and consequently not subject to that rarefaction and increase of volume that air is; and which might be attended with serious consequences in a cavity so confined as the labyrinth is.

VESTIBULE.—This is a small roundish cavity, hardly so much as a quarter of an inch in diameter, situated between the cochlea and the semicircular canals; to the outer side of it is the tympanum, with which it communicates through the fenestra ovalis. In its roof we find five openings, leading into the semicircular canals; besides which we notice two peculiar pits or *foveæ,* containing membranous sacs, *the sacculi vestibuli,* filled with fluid, and furnished with expansions of nerve. Anatomists have been misled, by their examinations of these depressions in the dried bone, in supposing that they reverberated the sound; this shews the danger of forming conclusions from such artificial inquiries.

Semicircular Canals.

These canals are *three* in number, placed side by side, behind the vestibule, opposite to the cochlea; but they are entered by *five* openings through the upper part of the vestibule. They are distinguished as the *superior* or *vertical canal,* the *posterior* or *oblique,* and the *exterior* or *horizontal.* The superior and exterior canals possess one opening common to both, and one peculiar to each, besides; while the posterior canal opens into the vestibule by two distinct orifices; thus making altogether *five* apertures. The separate orifice of the superior canal opens nearly perpendicularly upon the fenestra ovalis.

From the sacculi vestibuli branches of nerves are sent into the semicircular canals, in which they float loose and unattached in the fluid surrounding them. It was once supposed that the auditory nerve was spread over the periosteum by which the labyrinth is lined; later researches, however, have shewn that it is within the sacculi it expands, which do not even come in contact with the periosteum, but are simply connected to it by a pellucid, cellular, mucus-like matter.

The semicircular canals are formed out of a peculiarly hard brittle bone; and their diameter is so small, as scarcely to admit of the introduction of the head of a common pin.

Cochlea.

This is the last division of the labyrinth, and by far the most complex one. It receives its name from its resemblance to the convolutions of the shell of the snail: it possesses a spiral or pyramidal form, and has (by no means inaptly) been compared to a spiral staircase, running round a column placed in the centre. It is situated below the vestibule; its base resting against the meatus auditorius internus; its apex extending to the Eustachian tube. At its base it describes a large circle

which winds upward, gradually decreasing towards the apex, forming altogether about two turns and a half. If we make a vertical section of the cochlea, it presents the appearance of being divided into three cavities or separate compartments: this, however, is not the case in its integral state, since the spiral turnings of the tube run from one into the other.

Lamina Spiralis—Scalæ Cochleæ.—There exists a structure inside the cochlea, giving peculiar complexity to it, denominated the *lamina spiralis.* It consists in a partition or plate set edgeways, partly osseous and partly membranous, running through the spiral tube of the cochlea, and dividing it into two separate gyrations, called the *scalæ cochleæ,* which at the apex run into each other and communicate. At the base, the external gyration communicates, through the fenestra rotunda, with the cavity of the tympanum; the internal gyration ends in the vestibule.

Modiolus.—This is the central column or pillar around which the scalæ perform their gyrations. It consists of a soft spongy structure, being pierced on every side like a colander, for the transmission of nervous filaments to lamina spiralis.

Infundibulum.—Towards the apex of the cochlea the modiolus opens, the aperture bearing some resemblance to a funnel, being full and expanded upwards; this aperture is what is called *the infundibulum.*

Meatus Auditorius Internus.—This is a small and entirely bony canal, piercing the petrous portion of the temporal bone, and running from the interior of the cavity of the cranium to abut against the vestibule and cochlea, for the conduct of the seventh pair of nerves. At its termination it is closed by a cribriform osseous plate, which is not flat, but bulges a little, through whose perforations are transmitted the fasciculi of the portio mollis. The principal part of this plate is set opposite to the cochlea; but a portion extends across to the vestibule: so that nervous filaments gain admission into both cavities.

A FEW WORDS ON THE CAUSE OF SO GREAT A NUMBER OF CHRONIC AND INCURABLE LAMENESSES IN HORSES.

By Mr. Kerr, *V. S., Southampton.*

A practitioner who has but seen a tolerable share of practice, more especially the London veterinarian, cannot but be struck with regret, when he reflects on the very great number of

cases of chronic lameness to be found among our most valuable kinds of horses. The causes of this mischief, I consider, are especially two :—first, our *ignorance and cruelty*—expecting that the noble powers of the horse are in unison with our own inordinate desires, we expect too much from him, much more than our continental brethren ; hence the soundness and lasting durability of their horses' limbs when compared with our own.

Much to be pitied is that unfortunate steed whose locomotive nervous energy is great, should he chance fall into the possession of an individual, who, when rattling by the gaping spectators either on the back of or behind him in harness, distressed, but still at the top of his speed, evidently fancies, by his knowing look and his desire to court observance, that the whole credit is due to himself: with this silly, vain, and cruel conceit, the poor animal, as long as his merciless master thinks proper to court admiration, is permitted and even urged to abuse his extraordinary powers. The necessary consequence of such continued *rapid* exertion is, alas! too evident. What greater proof can there be of the mischievous consequences resulting from our undue use of the horse, and also in taking him *at much too early a period into service,* necessarily disarranging the beautifully complicated structure of his limbs, not yet sufficiently matured by age for labour, than the woful fact, that, if an individual is in want of a horse, and looking into his mouth, he finds only aged, viz. eight years old, he immediately rejects him, from the knowledge (much to our shame) that the probability is his limbs are so shook, as to render him unfit for the necessary duties of even a humane master, when in fact, if the horse was treated as he should be, he would *barely have arrived at the prime of his life.*

Again;—horse proprietors must not suppose, as I mentioned in a former paper, that, because they have a horse whose desire for labour is great, his bodily strength is adequate to the exertion: his desire for labour depends on the excitability of that part of the brain and nervous system which influences the muscles of locomotion. And horsemen should ask themselves, is the form of the animal in unison with his willingness for labour? If it is not, which in thousands of instances is the case, he should, if he is desirous to preserve his horse, never use him without having that universal pest "*groggy lameness*" in his mind.

The second great cause is an *insufficiency of rest after the lameness is removed.* Professor Coleman very properly observes, that the principal cause of foot lameness is concussion; it is also the primary and most frequent cause of most lamenesses, whether of the shoulder, knee, splents, extensor or flexor ten-

dons, or suspensory ligaments, or lameness of the pastern joints, or navicular or coffin lameness, or acute inflammation of the laminæ, spine affections, injury of the patella or stifle, and of all the diseases incidental to the hock, &c. &c.; it is that violent battering which the parts receive while travelling with such rapidity over our hard roads, or from the jars the parts must necessarily receive from leaping, even when the most careful and sportsman-like conduct is observed.

With respect to the medical primary treatment of the whole of the cases I have mentioned, bloodletting either general or local, either sedative applications of a cold discutient nature, or, if the case indicates it, warm relaxing fomentations and rest, stand pre-eminent. It is not my intention to enter into the minutiæ of the treatment of each particular case; I am looking at lameness in a general point of view. I have said that the second great cause of so many incurable lame horses, is, *an insufficiency of rest after the lameness is removed.* This I am confident cannot be the fault of the practitioner; it wholly arises from a mistaken savingness of the proprietor: "he cannot bear to see his horse standing in the stable, eating his head off," quoth he, and actually has recourse to the most expensive step he could take, very frequently to the total destruction of the animal's usefulness, *by compelling him to resume his accustomed labours immediately after the cessation of the lameness.* Such an act must be done without a moment's thought or reason. Does he suppose that the very moment that the patient ceases to evince pain by his gait, after a violent lameness, the complicated structure so lately disarranged is as capable of *being battered with impunity, as before the violence done to them?* and does he reflect that such treatment is almost sure to occasion a recurrence, which is more troublesome to remove than the primary lameness, but which not being of so acute a form, the proprietor irritably exclaims, "I shall work him sound?" He works the poor animal, *lame* and in pain, until he is sick of seeing him, or ashamed of being seen using him; at last sells him for what he can get; or perchance acts still more humanely by sending for the slaughterer, to make food, perhaps, for the very hounds, he, but a short time previously, so nobly and proudly followed.

Again; sportsmen and horse proprietors should bear in mind that long-continued inflammation in any part, more especially in parts connected with the foot and leg of the horse, is sure to engender an alteration of structure, and necessarily imperfect action, which, in a multitude of cases, is never to be removed. All this is their own seeking: they must not blame the practitioner,

unless, indeed, he is so remiss as to omit desiring the NECESSARY REST.

I maintain, then, that the advice of a veterinarian, when he urgently asserts that though the lameness has ceased, the patient should be, in proportion to the extent of the past mischief, *turned into a large loose shed,* for two, three, four, five, or six weeks, should unhesitatingly be followed. In *incipient navicular or coffin lameness,* the utmost of the time prescribed should be strictly adhered to; there they should remain at perfect rest, *not even an examination should be permitted!* Of what consequence is his losing his condition, or a few days enjoyment which he could afford? Is this to be compared with the lasting benefit that must accrue from such an important observance? By strictly adhering to this simple but most important part of the treatment, *thousands of valuable horses will escape the pain and misery of long-continued lameness; the writhing agony of firing and blistering, together with setoning, will be considerably abolished; and the pleasing satisfaction of having acted with humanity, with the more prominent darling of our heart's gain, will be your reward.*

A CASE OF ABSCESS OF THE HEART.

By Mr. RICHARD CORTIS, *V. S., Shipton.*

DURING the spring of 1831, the disease termed strangles was unusually prevalent in this neighbourhood: it was not, as is commonly the case, confined chiefly to young horses, but those of all ages were attacked, and in its very acute form. I beg to send you a case which is, I think, fully corroborative of a valuable correspondent's opinion (Mr. Castley's, *vide,* vol. iii, page 428), that what we call strangles may terminate in the formation of matter either on any part of the surface of the body, or among the viscera of the abdomen, or, in short, any where.—A bay mare, six years old, belonging to Mr. Wood, of Craike, near Easingwold, was, in the month of February, attacked with symptoms of strangles; the usual means were resorted to: matter formed under the jaw; the abscess was opened, and the mare was soon so far recovered as to be thought able to do a little gentle work, when, on putting on the harness, she was observed to crouch down almost to the ground. This drew the attention of the owner to her back, when a slight enlargement was observed on the loin on the off side: this swelling increased to a large size,

and in due time went on to suppuration, was opened, and an immense quantity of purulent matter discharged. The mare was again considered doing well, looked lively, fed well, and was regaining her condition, when a messenger called on me one evening, requesting my immediate attendance, as the mare was considerably worse. On my arrival, I found her in a dreadful state; her left fore foot extended, the sweat pouring off her, pulse considerably above 100, her breathing very laborious, and her countenance exhibiting such signs of distress, as are more easy for the reader to conceive than me to describe: in a short time she fell down, and died. The next morning I went to examine her, when I found the abdominal viscera with the lungs quite healthy; the pericardium was much thickened in its substance, and highly inflamed: on removing it, a large tumour was discovered in the muscular substance of the heart, on the left side near its base, containing half a pint of thick white matter of the consistence of cream. I ought to have observed, that, soon after the abscess on her loin was opened, she was observed to stand with the left fore foot considerably advanced, and on being moved she invariably returned it to that position: little notice was taken of this circumstance, which was attributed to the irritation occasioned by a rowel I had previously inserted in her chest, fearing, as she had a cough, the inflammation might fix on her lungs. Now, in my opinion, this may safely be considered as one of the sequelæ of strangles, and I think it very extraordinary that so much disease should be going on in such a vital part, and be unaccompanied by any observable constitutional disturbance; for the afternoon before she died, the mare had been turned out, had grazed well, and was considered by all around her to be rapidly advancing towards convalescence. I have before met with tumours following, and no doubt the consequence of strangles formed in the flank and at the point of the shoulder, as have also, I have no doubt, many of my professional brethren.

Shipton, 25 March, 1832.

PATHOLOGICAL FACTS AND OBSERVATIONS ON THE DISEASE TERMED FELTRIC, IN THE OLD SCHOOL—BY THE NEW, ANASARCA.

By Mr. Samuel Brown, *V. S. Melton Mowbray.*

This is evidently a disease of the vascular system; but whether it is an increased action of the capillaries or a diminished one of the absorbents, I will leave others to determine. It usu-

ally attacks yearlings and two-year-olds in the winter season, while they are in the field; and those which have been grazed on wet, poor land, are frequently its victims. I have seen œdematous swellings supervene active inflammation of the vital organs in horses of all ages, but such are probably the sequelæ of a debilitated system; whereas spontaneous anasarca usually attacks colts which are full of flesh, and half-bred ones appear to be the most susceptible of this morbed action. My experience will not warrant me to give an opinion as to the causes of this disease. I will, therefore, merely offer some interrogatory remarks upon a practice which the graziers adopt in those districts of Lincolnshire where the disease is prevalent, with the hope of eliciting from some member of the profession a more satisfactory detail of the disease, and a successful mode of treatment.

Those persons who breed horses and graze them on moory land take their young ones up for a fortnight in the month of August, and keep them on dry food, in order to prevent a malady which frequently terminates the existence of those subjects which it attacks. From the above fact, are we to infer that the herbage in the month of August is deficient in nutriment? or that wet land is favourable to the growth of some noxious plant which forms a part of the ingesta, causing a morbid action in the digestive organs; or that the grass contains some peculiar principle which produces in the horse a predisposition to disease; and a consequent susceptibility to the "mysterious agency of the atmosphere" in the winter season? or shall we simply presume that a fortnight's dry food is sufficient to compensate for the loss of nutriment which the herbage sustains during the autumnal months; or that it has the salutary effect of invigorating the constitution, so as to enable it to resist the predisposing causes of disease?

The disease shews itself, at first, by swellings of the inferior parts of the body; and the breath and excretions are also characterized by a peculiar smell. Tumefactions appear on the lips, legs, sheath, and under the belly, which usually extend to the fore extremities. These swellings are soft and inelastic; and I should say, that they are not very sensitive, as the animal does not evince pain when they are pressed upon by the finger, the impression of which remains for some time. By degrees, the tumefactions extend; the eyelids become bloated; the animal is sluggish; he seldom lies down; and loathes his food; respiration becomes accelerated, with a feeble pulse. These symptoms are succeeded by a loss of flesh and prostration of strength; the respiration is limited and difficult, with a frequent and indistinct pulse; diarrhœa frequently supervenes, which speedily destroys

the animal, in despite of the most active treatment which may be pursued to arrest its progress.

In anasarca, three indications of treatment may be considered necessary. First, to take the animal into the stable (and, if possible, a roomy box); secondly, to evacuate the effusion already apparent; and thirdly, to prevent its return. The second object may be obtained, in some measure, by topical means, as scarifications, stimulating embrocations or blisters, fomentations, especially with the decoction of oak bark, friction, bandages, &c.; and by the use of such medicines as increase the action of the absorbents. With respect to the first three, I think they may be injudiciously applied, as I do not recollect having seen any benefit derived from their use, and there may be some danger of their inducing gangrene. Venesection is contraindicated, as the blood when drawn presents a large proportion of serum, with a paleness of colour and a flaccidity of the coagulum. There is also some risk in using setons, as it is difficult to promote a healthy suppuration, and the consequence may be an unhealthy inflammatory action. The third indication is, to remove what we suppose to be the exciting causes of the disease, and to endeavour to invigorate the system.

In the early part of my practice I supposed that the exciting cause might be an obstruction or morbid action of the digestive organs; and, under that impression, I commenced the treatment with a cathartic. But my efforts to cure the disease by catharsis were obviated by an extreme irritability of the bowels, which renders it not only difficult, but almost impracticable to apportion the dose; indeed, the bowels are so susceptible of the stimulus of aloes, that, at the commencement of the disease, I have seen superpurgation produced in a three-year-old colt, full of flesh, by two drachms, and death was the consequence. In this case, the morbid appearances after death were, an inflammation of the mucous coat of the bowels, a serous effusion into the cellular membrane, with a general laxity of the muscular fibre. These appearances were sufficient to convince me that my preconceived notions as to the exciting cause were somewhat erroneous, and that practical knowledge was more requisite for veterinarians to possess than favourite theories.

I abstracted a small quantity of blood from the next patient which I attended labouring under anasarca, in order to ascertain its quality; and, after it had coagulated, it presented the appearances above described.

Conceiving that physic was contraindicated, I ordered a liberal diet, and treated the case successfully with vegetable tonics, combined with stimulating diuretics; and by this mode of treatment

a considerable majority of the cases which have been entrusted to my care have recovered. But I have met with cases in which the change of food has caused the bowels to become rather constipated: this has been relieved by socotrine aloes, given in doses of a scruple to half a drachm, combined with the tartrate or supertartrate of potash and a few grains of powdered opium. In the more advanced symptoms, I have given digitalis, tartrate of antimony, acidulous salts, &c. without any apparent benefit. When diarrhœa has supervened, mucilaginous drinks or lime-water have been substituted for water; the decoction of oak bark has been given with prepared chalk, gum kino, or catechu, starch, opium, ammonia, &c. with similar results.

In those patients that died of anasarca which I have dissected, the morbid appearances were, a yellowness and laxity of the muscular fibre, with an effusion into the cellular membrane, which appeared to be a mixture of lymph and serum. The pericardium and pleuræ were also thickened with a similar effusion, which nearly collapsed the lungs, and impeded the action of the heart. The same adventitious deposit pervaded the abdomen, which rendered it difficult to distinguish the original structure of the omentum, mesentery, and peritoneum. In one subject the kidneys were destroyed, which is the only visceral change that I have observed; but this was a protracted case, and the disorganization probably may be attributed to the free use of saline diuretics, combined with digitalis.

CASE OF ANASARCA ACCOMPANIED BY ASCITES.

By the same.

The subject of these attacks was an aged brown carriage-horse, which I attended on the 6th of January, 1832. The symptoms, œdema in the sheath, throat, lips, and legs; the pulse feeble; the membranes of the mouth, nose, and eyes, pallid; the skin dry, and hair staring; accompanied with loss of appetite. On inquiry, I learned that the horse had been very hardly worked previous to his illness (which had continued about a fortnight), and that the blacksmith had bled and physicked him. These facts tended, in some measure, to corroborate the impression that the œdema was the effect of debility; and I ordered the horse to be put into a box, to have his sheath fomented with the decoction of oak-bark, and to be supported by a towel put underneath it, and fastened upon the back; his legs to be hand-rubbed, and then bandaged; carrots to be given him once a-day, while he was

liberally fed with corn. I also left strict orders that they should let me know how the horse went on.

On the 7th, I sent three balls, compounded of pulv. cort. cinch.; pulv. gentianæ et zingiberis, terend. cum terebinth. et bal. copaibæ; one to be given every alternate day.

I heard no more of my patient till the 19th, when I was requested to attend him in great haste. Upon inquiry, I was informed that the horse had fed well, and had become cheerful in his gentle exercise, and that the swelling had nearly disappeared; but *the blacksmith had given him another dose of physic, and rowelled him, thinking it would cure him.* On my visit, I found the horse very weak, and standing, with his legs and sheath tumefied; countenance anxious, frequently turning his head to his sides; appetite lost; pulse frequent and small; with copious watery alvine dejections, accompanied with a rumbling noise of the bowels; the urine was high coloured, and frequently voided in small quantities. I gave him creta pp., et. pulv. kino comp. in pint and a half of thick starch; and ordered his legs to be fomented with bran and warm water, and to be afterwards bandaged: starch clysters to be given, and his water to be thickened with arrow root.

20*th.*—The horse had not been down, but appeared rather better. He had eaten a small quantity of hay, and drunk some thick arrow root: the excrement was thicker; pulse not so frequent, and rather fuller:—medicine and clysters repeated. Continue the arrow root, fomentation, &c.; appetite coaxed with carrots, oats in the straw, clover, &c.

21*st.*—The purging and rumbling had nearly ceased, with the pulse and appetite improved; urine voided of a better colour, and not so frequent; but he had not been down. Small doses of ammon. carb., gum kino, pulv. opii, cascaril. et cinnamom. cum creta pp., were given in a ball every twelve hours. Water, which had been boiled, and a handful of oatmeal stirred into it, was placed within his reach.

22*d.*—Still standing; bowels relieved; staling improved; but in other respects much the same.

23*d.*—He had not lain down. The near fore leg being inflamed and painful, was fomented with an infusion of camomile flowers. He had voided some fæces during the night of the 22d, of their natural consistence; appetite and pulse slightly improved; medicine discontinued, and boiled water allowed him to drink.

I did not see him on the 24th, but early in the morning of the 25th I was informed that the horse was dead; and that he became very restless on the previous night, at eleven o'clock;

and that the coachman bled him about one in the morning: but after the bleeding, he began to stagger, fell down, and struggled till about five in the morning.

Post-mortem appearances.—The cellular membrane was suffused with a limpid fluid, and the abdomen contained from eight to ten gallons of fluid of a similar nature; but the viscera were healthy, with the exception of the kidneys, the pelvis of which contained about a table spoonful of purulent mucus, with an ulcerated surface, but their substance was healthy: the thorax presented a healthy appearance.

ON THE EFFICACY OF CANTHARIDES IN GLANDERS.

By Mr. W. J. Karkeek, V. S., Truro.

I refrained from replying to Mr. Pritchard's letter in THE VETERINARIAN for February last ere this time, entitled "*Defence of Mr. Vines' Publication on Glanders, with a case of its successful treatment by Cantharides,*" in expectation that a more able champion would have taken up the cudgels in support of the efficacy of cantharides. I refer your readers to Mr. P.'s statement, which he describes, as "one of the numerous cases," which had occurred in his practice, shewing *the beautiful efficacy of cantharides.* This case, in my opinion, has nothing whatever to do with glanders. What it might have been, if Mr. P. had not administered cantharides and gentian, instead of pursuing his first plan of treatment, we may form a tolerably safe guess. In all probability he would have died; but fortunately, the "*tonic stimulating plan,*" as Mr. Vines very properly calls it, "tended to raise the vital powers and invigorate the system, so as to resist the effects of the disease."

I entered on the subject without prejudice, and only as it regards the interest of science. I did not mean to insinuate, as Mr. Pritchard has stated, that Mr. Vines' book was of no benefit to the profession; but only as far as it respected *the curing of glanders by cantharides.*

Mr. P. in this instance has most practically and fairly contradicted the vaunted maxim of the epicurean, "ex nihilo nihil fit;" for he has made a great deal out of nothing.

I shall be most happy to see a few detailed cases of glanders in the next VETERINARIAN. Perhaps Mr. Pritchard will be more fortunate in his next selection out of the numerous cases which have occurred in his extensive practice, shewing "the beautiful efficacy of cantharides."

ON THE PRESENT STATE OF THE VETERINARY PROFESSION, IN REPLY TO V. S.

By W. J. G.

To the Editors of "The Veterinarian."

Gentlemen,

On looking at the index of your last number but one, I perceived "A Reply to W. J. G." announced, to which I certainly turned with some avidity. But I must confess my disappointment after perusing it; for instead of its being any thing like an answer to the grievous circumstances that I had stated in a previous number of The Veterinarian, it is rather a kind of tacit but unwilling acknowledgment of the truth of most of them; and, evidently, from the pen of an unfortunate brother chip, who would prefer to hide from the world our degradation, rather than expose it in its true light.

When you commenced the publication of The Veterinarian, I am ready to admit that, at that period, there did exist a great spirit of party feeling and rancour, which tended to do our cause more harm than good: you very justly pointed out to us the mischief that was likely to accrue were it encouraged, and you very properly withheld many communications that would have fanned a flame much better extinguished; but that day is gone by, and although your pages have temperately put forth the absurd incongruities that are now suffered to exist, to our great prejudice, still we are not (I am sorry to publish it) one iota nearer that climax to which every real devotee to his profession must ardently look forward than we were years ago.

Could your correspondent have communicated to us, that the Professor was strenuously employed in endeavouring to introduce some members of the veterinary profession into the examining committee, and which committee can never be efficient or deserve the name of a veterinary board of examination until veterinary surgeons form part of it, or preside over it; could he have informed us, that a competent lecturer of chemistry had been appointed to teach that science *at the College,* instead of allowing pupils who have paid their twenty guineas fee of admission to run promiscuously over the town, like so many charity boys, with gratuitous tickets to lectures delivered three miles from the institution; could he have told us, that the materia medica was to be taught, and that the infamous formula of college ignorance, so notorious for its unchemical and absurd combinaons, had been revised and made intelligible, instead of being permitted to remain a disgrace to the institution and the profession; could he have said, with justice, that, instead of grooms and igno-

rant fellows, who can scarcely read, and much less write, the man of education had been encouraged to enter the College walls, and which the College regulations would fain make us believe to be the case—then, indeed, might the letter of V. S. have been called a reply.

On the contrary, I assert,—and it is not with any personal motive that I do it,—that it is now the interest of the Professor to keep the Veterinary College exactly as it has been for years; but, then, we are obliged to hear every time the subject is mooted, that the work of reformation is begun, that a pupil now cannot obtain a diploma from the medicals without having been a year at the College,—a whole year!! Certainly, an adequate time for the acquirement of such a profession!!

Still do we find every year in Mr. Coleman's annual advertisement, that the anatomy and diseases of the horse, and all domestic animals, are fully discussed. Yet I know, that when I was at the College I never heard a syllable uttered upon either the anatomy or treatment of cattle of any kind; indeed, I much doubt if the worthy Professors know any of the subjects; and I would wager that they would be greatly puzzled were they requested to give the age of an ox, or any other ruminating animal, by inspecting his teeth. Yet do our continental brethren not only write upon these subjects, but upon others not even dreamt of at St. Pancras.

The attempt to undersell the private practitioner in the metropolis, by foisting upon the public drugs that no responsible man would, for his own credit sake, think of recommending, is unworthy such an institution. Look at the charges of the College medicines, and I defy any one to state, truly, that a good article can be supplied at their prices. When inferior Cape aloes and resin are the chief ingredients, perhaps, a profit may be made; but, if a practitioner has his livelihood to obtain, he must use such medicines as he can depend on; and I may with justice say, that there is not a veterinary surgeon in the town who does not feel the injustice and indignity offered to him in this instance. As a member of the veterinary profession, I should have been proud to have had it in my power to boast of the character that we ought to have attained, after nearly forty years' growth; but can I, in the face of the daily exposures that take place (and were you only to look to Horse Causes, to verify the ignorance that is usually displayed, you need no better and more striking proof of the truth of this) attach to veterinary surgeons, as a body, that respectability and consideration which are only due to men of science? Certainly not: and it needs no ghost to explain, that we are not the liberal and en-

lightened practitioners, that your correspondent would fain persuade the world and himself that we are.

I shall be too happy at all times to record my gratitude for any amendments that may be really looked upon as such, whenever it may please the governors of the College to make them; and I shall be much more ready to take up my pen to set forth such to the public than to be detailing, and that but imperfectly, the flagrant abuses that do now exist: but still I shall always prefer an honest endeavour to expose such evils, although at the expense of some compunctious feelings, to the quiet reign of injuries that should only require to be brought to light to be annihilated. Your obedient servant,

W. J. G.

CASE OF INFLAMMATION AND DISORGANIZATION OF THE LIVER, WITH EFFUSION.

By Mr. J. M. Hales, *V. S., Oswestry.*

Upon the 3d of last February, I was called to a thorough-bred mare, the property of R. Middleton Biddulph, Esq., M. P., of Chick Castle. When I went into the bin where my patient was, the groom said, "This is a curious case, for there is neither fever, inflammation, or pain; but she won't eat, and is gone to a bag of bones, and the only way in which we can keep her alive is, by drenching her with gruel." The mare was a most excellent hunter, thirteen or fourteen years old, and Mr. Biddulph being in town, had, three weeks ago, lent her to a friend for a little hunting, at which time she was in beautiful condition. The first day the gentleman rode her he found she was not as she used to be—was out of sorts; but not suspecting that any thing was materially amiss with her, he hunted her twice more, and found upon each occasion that she was worse and worse; and began to los flesh rapidly; and five days since she was brought back to her own stable, and has continued getting lower in flesh, and is now, as the groom observes, a bag of bones. When the Schneiderian membrane, mouth, and eyelids were examined, they were found of a pale yellow colour; she was costive, and dunged but seldom, and has passed nothing since yesterday; but this was attributed to the small quantity of food she took: pulse 50; she was bled three days back by the groom. There could scarcely be a doubt in this case, that the liver was the principal if not the only seat of disease; and, under that impression, she was ordered small doses of calomel and aloes, with sulphate of potash to be given every day; and to be

clystered night and morning, if the fæces are not naturally evacuated. As it was scarcely possible to get her to eat any thing, she was not restricted to diet in any other way than that the lighter the food she could be enticed to eat the better; and, if she would not of herself take food sufficient, she was still to be supported with gruel.

5th.—The groom called upon me this morning, to say that yesterday morning the mare began to purge, and that the yellow colour of the membrane of the nose and eyelids was nearly gone; in other respects he thought the mare nearly in the same state as I saw her; he also said, that the first ball was given in the evening of the 3d, and next morning she was purging, notwithstanding which he gave her another ball yesterday, and to-day the purging has ceased. Whether, therefore, the purging was an effort of nature or the result of the small quantity of medicine that had been taken, will admit of much doubt; and I am disposed to give nature the merit. A ball to be given every other day. It will be needless to detail this case further: suffice it to say, that the yellowness of the membrane entirely disappeared in a week, and was succeeded by a pale colour; and in other respects she was sometimes thought to be better, at others worse, till March 29th, when she died. For some time before her death, I considered it very likely that she had water in the abdomen, as the result of the liver affection; but not possessing the *tactus eruditus,* as laid down by your correspondent, Mr. Cartwright, I could not detect water by percussion of the abdomen; and believing that ascites often exists without the premonitory symptoms by which he considers it to be known; and believing also that the symptoms he has described as characterizing dropsy, such as pawing, rumbling of the belly, looking to the flanks, &c., may exist as manifesting other diseases, I was obliged to content myself with a conjecture, that it was probable there was water in the abdomen. It is worthy of remark, that, after the purging above mentioned had ceased, the bowels acted in a most perfect manner: her food was light—gruel, mashes, and a little pulled grass; her dung moist, and well digested.

Post-mortem examination.—Upon opening the abdomen it was found to contain several gallons of red serous fluid. The whole of the peritoneum was thickened, and almost of a black colour. The peritoneal coat of the colon and cœcum exhibited the same appearance, and was, indeed, in some parts quite granulated. The inner coat of these intestines was perfectly natural in appearance. The liver was very much enlarged, and of an oblong globular shape. Its peritoneal covering could easily be peeled off;

and the entire structure of the liver was broken down and destroyed, much resembling in appearance broken up coagula, interspersed with streaks of pus: no vestige of its natural structure remained.

This case is only one amongst many that shew to what extent disease may go on before life is destroyed, when the change proceeds gradually, when nature has time to adapt herself to the alteration; but when the attack is sudden and severe, she has not time to shift her ground, and soon gives up the contest; for the more sudden the disease of which a horse dies, generally the less the morbid appearances discovered upon dissection. It is astonishing with what extensive disease, not only of the liver but of the lungs and other viscera, horses will sometimes appear in good health and condition.

RUPTURE OF THE PERITONEAL COAT OF THE LIVER.

By the same.

A COACH horse, belonging to a postmaster of this town, was put to the coach one morning, supposed to be in perfect health. He scarcely went to the end of the town before he faltered, and was taken away and brought home; and a few hours afterwards he died. When the abdomen was opened, four or five gallons of blood were found in it. There was a large rent in the liver, from which the blood had issued: the liver was totally disorganized, very much enlarged, and had the appearance of a large tumour having formed within the abdomen. The anterior part firmly adhered to the diaphragm; and its peritoneal covering was easily separated and in some parts was quite detached from it. Two days after the liver was removed from the abdomen of the horse, and, of course, a considerable quantity of blood kept oozing from it, it weighed twenty-one pounds. The subject of this accident, up to the morning of his death, was considered one of the best feeders and best doing horses in the whole stud. I could cite other cases of a similar description, but shall not take up more of your space on the present occasion. Although lesions similar to those that have now been mentioned are irremediable, even if their existence was known, still I consider that such cases are well worth the attentive observance of the veterinary surgeon: they add to his knowledge of pathology and morbid anatomy, are of great importance in physiological research, and will prevent his giving dogmatical opinions upon uncertain data.

CASE OF ABSCESS IN THE LUNGS.

By the same.

Some years ago I was attending a cart mare with a bad foot, from matter having formed under the sole, and broken out at the coronet. I had been in attendance about nine days; and although my patient was rather on the improve, yet there still remaining a good deal of inflammation around the coronet, a dose of physic was directed to be given (she had had one before). Two days after, I went to see the mare (six miles from Oswestry), and, to my great astonishment, was informed that she had died about two hours before my arrival. Upon inquiring as to the cause of death, I was told, not very *good humouredly*, that my physic had killed her. I asked if it had purged her violently? The reply was, "No; we only gave it yesterday, and it had not operated at all." I said, We will examine her, and then, perhaps, we shall be better satisfied about the matter. Her chest being opened, the mystery was unravelled. It was deluged with pus; and there were then in the lungs several large abscesses, one of which contained at least a quart of pus. The case was now plain enough—a large abscess in the lungs had burst and suffocated the mare. The owner was perfectly satisfied; but had I not been present and had the mare opened, she would have been buried as she was, and I should have obtained the merit of killing her; as the gentleman to whom she belonged declared, that he believed the mare to be as sound as any horse he had in his possession. She ate her food to the last, and lay down very much to ease her diseased foot.

A SUCCESSFUL CASE OF TETANUS.

By Mr. F. King, *V. S., Stanmore.*

To the Editors of "The Veterinarian."

Gentlemen,

I at last set about fulfilling my promise. If this case appears to you sufficiently interesting, it is much at your service. We all know, that where injuries have been followed by tetanus, the cases (the immediate consequences of the accident itself) have generally appeared to go on uncommonly well. I never before or since had an opportunity of seeing, *after the disease was established,* so much mischief done; and the progress of the disorder so little influenced thereby. Where the disorder has succeeded docking, I have never seen it arrested, or in any way

influenced by a fresh operation. This case shews what may occasionally be done by perseverance. The question respecting hereditary disposition I shall leave alone; and only tell you the fact.

Stanmore, April 23, 1832.

Dec. 21, 1827.—I was called to a colt, three years-old, with tetanus. His dam, when he was one year old, died from the disease, evidently brought on by a painful festering corn. I could not attribute his disorder to any known cause; the muscles, generally, very rigid and hard, the power of masticating soft food barely remaining; the superficial vessels full, and extremities warm. Bleed; stimulate the extremities, and give two drachms ant. tart. in every pailful of water. It was regularly taken. Continued the treatment (the symptoms not gaining on us) till the 27th, when he got down, and was obliged to be lifted up by the pulleys. The treatment continued; the bowels were relaxed, and decidedly acted on about the seventh day.

31*st*.—During the night got down again; the limbs so rigid and stiff, that the two upper legs could not touch the ground, but kept beating the air, as it were, incessantly. From his struggles on the pavement of flint, the skin of the hip, shoulders, and head was completely rubbed off, and the parts so much injured and bruised, that considerable exfoliations from the ileum and the zygomatic process of the temporal bone succeeded. The power of mastication still remaining, he was lifted up again with the pullies, and kept suspended. Continued the treatment, with occasional intermissions, till January 28th, when improvement had so far taken place, that he was loosened and led about daily; but put into the suspensory after exercise.

February 7th.—The attendants left him tied up to the rack. Between three and four hours after, on their return, he was found almost down, the halter being strong enough to hold his head close to the manger rail. In his struggles attending that confinement he extensively broke open the old wounds; and by the near fore leg repeatedly striking a sharp-edged post, he made an opening into the fetlock joint. His owner being from home, it was thought advisable not to destroy him. He was raised again. By this time a considerable relaxation of the muscles had taken place; so that a dose of physic was administered, and he was bled freely. Synovial discharge, with great inflammation and pain, came on in a few days: the off leg, by supporting the whole weight of the body, began to bend under him. The sling was constructed with a swivel at the top; and he was moved in a circle frequently in the daytime. The leg continued to increase bending at the knee backward, so

that it was nearly three inches out of the perpendicular; and when forced to move forward, it was accomplished by a general lift of the fore-quarters and a quite straight knee. This circular exercise was continued, and the fetlock went on better than could have been expected: the wound closed, and he began to bear on it about the 20th. His exercise was kept up till March 9th, when he was taken out and led about daily; the knee gradually recovering its power and natural position. A considerable thickening of the joint took place, which threatened a complete anchylosis; and though for a long time it was wholly inflexible, yet he ultimately recovered almost its full extent of motion, and became sound, and is at this day a very useful horse.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XI.

Farcy—It is Inflammation and Ulceration of the Absorbents—Only another Stage of Glanders—Its Treatment—Local and Constitutional—Caution as to supposed Cures.

The Absorbents and their Function.—I shall have in due time to describe to you a set of vessels that are discharging a very important duty—*the absorbents.* While by means of the arterial capillaries all the secretions are performed, and they are every where employed in building up the frame, the absorbents are no less diligently at work in taking up and carrying away in their turn every portion and part of it. There is no surface, there is no assignable spot, on which thousands of their little mouths do not open. Here are some beautiful injected preparations of the absorbents of various tissues and organs.

The Absorbents take up the Matter of Glanders, and are inflamed by it.—In the discharge of their duty, they not only take up that which is worn out and useless and innocuous, but that which is poisonous and destructive. They open upon the surfaces of the glanderous chancres. They absorb a portion of the virus which is secreted from these ulcers; and as it passes along these little tubes, they suffer from its acrimonious quality: they are irritated, inflamed, thickened. Hence the corded veins of the farrier, or, rather, the thickened absorbents following the course of the veins. See in these preparations how closely they do follow them, not only in their smaller and superficial ramifications, but their deeper-seated and larger a branches.

The neighbouring Absorbents first affected.—The absorbents in the neighbourhood of the inflamed and ulcerated surface are first affected. I have said in a former lecture, that the very chancres run in lines, indicating the path of the absorbents, and in fact being ulcerations of them. The effect is next perceived about the lips and face and neck.

The Valves of the Absorbents.—The absorbents, as well as the veins, are under the influence of the muscles; the contents of these little vessels are, partly or principally, propelled by the action of the muscles; and therefore the mechanism which is detected in the veins becomes necessary here, that when these vessels are compressed by the muscles, the fluid shall pass in the right direction, and not pursue a retrograde course. Valves, loose duplicatures of the lining membrane, are placed, as you will see in these specimens, at certain distances, which lie flat on the side of the vessel, and permit the fluid to pass in a direction towards the chest, but belly out, and impede or arrest its progress from the chest.

They become inflamed and ulcerated.—Whether the virus retains its sticky character as it travels along the absorbent, and so becomes entangled about these membranous folds, or is, from the pressure of the muscles on the vessel, detained for awhile in contact with the valves, the principal inflammation takes place there. There the parietes of the absorbent are most thickened; a mechanical obstruction seems to be formed, and we feel and see many small hard knots, or buds—farcy buds; and these are likewise, at first, in the neighbourhood of the original disease. They are almost invariably seen about the lips and nose and neck. They are hard, of a scirrhous hardness, more or less tender, and generally with perceptible heat about them. These little tumours, the consequence of inflammation, pursue their usual course—they suppurate, they ulcerate, and the ulcers have the same peculiar character as those on the membrane of the nose: they are rounded, with an elevated edge and a pale surface; they also are true chancres; and they discharge a virus as infectious and dangerous as the matter of glanders.

The Ulceration spreads.—These farcy buds and ulcers are sometimes few and small and stationary. The virus seems soon to extend its force, or is diluted with other matter. At other times they are numerous and spreading and painful; this depends on the quality of the virus and the state of the constitution. This continues for awhile: the health of the animal is scarcely affected; the progress of the buds and the ulcers is rapid or slow, depending on various circumstances; but the course is always apparent,—in a direction towards the chest—

the natural course of the absorbents, and as the matter is detained at each valve, for there the principal inflammation takes place, yet the inflammation is evidently to be traced along the whole course of the absorbents, and between each knot is the corded vessel.

Other Absorbents at length involved.—At length the virus reaches the thoracic duct, mingles with the circulating fluid, and is conveyed with the blood to every part of the frame. It seems not to affect the lining membrane of the artery or the vein; they are not corded, nor do they ulcerate: but it is deposited with the other ingredients of the blood on every tissue and every portion of the frame. Deposited there it is harmless, so far as that tissue or part is concerned; but on that tissue and part, absorbents open, and they take up and carry away this foreign body thus deposited. The superficial lymphatics first go to work, and they are most susceptible to the empoisonment of the virus: they become corded and knotted at the valves, and they ulcerate, and we have there the farcy bud, and the connecting corded absorbent.

There are a certain set of these absorbents which seem most disposed to take up the poison, or are most readily affected by it, and these are the distant superficial absorbents, and principally those of the inside of the thigh; and the cords appear, and the ulcers break along the course of the principal veins of the thigh, because in company with them the absorbents are found.

The deeper-seated Absorbents affected.—But the action and the mischief are not long confined to the superficial absorbents; the deeper-seated ones are soon implicated—those which open on the cellular texture, or the deeper and minute structure of every part.

Different Result of Inflammation in them.—Here the inflammation of the lymphatic assumes another form. There are no valves here, and consequently no knots; neither is the action confined to the larger branches or trunks, but the myriads of capillary absorbents, which penetrate every part, become inflamed and thickened and enlarged, and they cease to discharge their function; they neither take up the fluid exhaled on various surfaces, nor the interstitial deposit which is the usual accompaniment of inflammation in the neighbourhood of the affected vessels, and so there is engorgement of the substance of various parts, swellings of the head, about the chest, of the hinder legs; sudden, painful, enormous, and distinguished by a heat and tenderness which do into accompany any other enlargement. It is not merely an accumulation of fluid or interstitial deposit; it is a mass of minute, inflamed, absorbents, and therefore hot and intensely painful.

Complicated Mischief.— And now the superficial and the deeper-seated absorbents being involved, a strange aggravation of disease is soon observed: the ulcerations are more rapid and more extensive; they involve not only the valve of the larger absorbent, but whole masses of minute absorbents. The virus is greater in quantity, more virulent, more corrosive. The ulcers run into sinuses about the hock, and under the flexors; difficult to get at, and difficult to treat. There are discharges of fœtid matter from most or all of them, and from the nose and from the mouth, attended with enlargement, threatening instant suffocation: at other times the inside of the thigh, at others almost the whole frame, presents a mass of ulceration and putridity.

Different in different Horses.—The mode of attack varies considerably in different horses. Sometimes the animal appears to be nearly or perfectly sound, when, all at once, the farcy ulcers and farcy engorgements appear, and speedily run their course: but in the generality of cases there is some warning, from loss of appetite and condition, and spirits and strength, and the gradual appearance of the corded absorbent and the knotted valve about the face or the neck, and slight swellings of the limbs, giving far more pain than their external appearance would account for.

Does Farcy exist without previous Glanders?—We have been told that farcy exists without previous glanders. I am not disposed to deny, that something almost amounting to this may have occurred; but they who tell us that it is of such frequent occurrence forget, or are not aware of, the long-continued insidious stage of glanders; the time which may elapse, and often does elapse, before the owner is aware, or the veterinary surgeon sure of it; how possible it is that minute ulceration may have for a considerable period existed in some of the recesses of the nose, or that the slight discharge, undreaded and unrecognized, yet vitiated, poisoned, and capable of communicating the disease to others, may have been long absorbed and carried through the frame, and affected the absorbents, and prepared for the sudden display of farcy.

Farcy ultimately combined with Glanders.—One thing is undeniable, that farcy does not long or extensively prevail without being accompanied by glanders; that in the majority of mild cases of farcy, glanders may be seen if looked for; and that it never destroys the animal without plainly associating itself with glanders.

The true Theory of Farcy and Glanders.—Farcy and glanders are, in fact, stages of the same disease. Glanders, when recognizable by ulceration, is farcy of the Schneiderian membrane —inflammation of the absorbents of that membrane, and ulcera-

tion at the valves of those absorbents. Carefully examine this splendid specimen. There are hundreds of chancres on the septum; but where do you find them?—Precisely along the course of the main venous, and consequently absorbent, trunk. If they deviate from this situation, it is in lines, following the course of the smaller vessels. It is a disease of the absorbents,—it is farcy; but now confined to the Schneiderian membrane, and, while so confined, continuing to be designated by the term glanders; when spreading to other parts of the frame, acknowledged to be true farcy. They are, I say, different stages of the same disease. If I were compelled to point out the precise line of difference between them, I should say that glanders was inflammation of the membrane of the nose, producing an altered and poisonous secretion, capable of communicating the disease to other horses, and to the malignant influence or effects of which the lining membrane of the absorbents was peculiarly sensible; and that when sufficient of this vitiated secretion had been taken up to produce inflammation and ulceration of the absorbents, farcy was established. Glanders has reference to the membrane of the nose, and farcy to ulceration of the absorbent, produced by a virus discharge from that membrane. They may both be said to be local; but, under the second form, so extensive a surface is diseased that the constitution is speedily undermined.

Its progress is occasionally very capricious,—as slow or as rapid as we used to say glanders was; continuing in a few cases for months and years, the vigour of the horse remaining unimpaired, and at other times running on to its fatal termination with a rapidity perfectly astonishing.

Diseases resembling Farcy—Sprain.—There are some diseases that bear more or less resemblance to farcy, and from which it is necessary that you should be able readily to distinguish it. You would hardly confound it with inflammation from sprain. This is too circumscribed, too plainly connected with the joint or the tendon—the heat and the tenderness referrible principally to some particular spot.

Grease and Swelled Legs.—It resembles more the enlargement of the limb from grease, or from inflammation of the cellular texture of the leg. You will generally find some connexion with grease more or less apparent or occult—some crack or scurfiness, —or if not, there is a peculiar tenseness and redness and glossiness of the skin, and ichorous discharges, and most peculiar catching up of the leg, so that sometimes the animal throws himself fairly off his balance, and falls upon, and sadly injures and bruises the incautious attendant. This swelling may be very sudden,—it may reach to the hock, and even to the thigh, but it

is usually to be traced to its origin; and it is most intense about the neighbourhood of the fetlock.

The swelling of farcy is yet more sudden. The horse is well to-day, to-morrow he is gorged from the fetlock to the sacrum; and although there are not the same redness and glossiness, there is exquisite tenderness: the horse cannot be touched, and there is burning heat in the limb, and much general fever. It is simultaneous inflammation of all the absorbents of the limb.

However, when I see the sudden swelling from grease which I have described, I am a little suspicious of that which may be mingling with grease, or for which grease may prepare the way; and you will have many cases in which these sudden swellings attributed to grease, and evidently connected with it, terminate in farcy.

Surfeit.—There is a pustular eruption named furfeit; I hardly knew why, until the erudite Mr. John Hinds enlightened the darkness of my understanding, by telling me that "it is connected with *mange*, and that both terms are of French origin; *sur-fait* or overdone being tantamount to *mange*, from *manger*, to eat, in its imperfect tenses—the effect of eating too much, which has brought on the disease." Well; this surfeit consists of a pustular eruption—surfeit bumps, as they are called—but terminating in desquamation, not in ulceration; and although numerous, yet irregularly placed, never following the course of the absorbents, but scattered all over the skin.

Anasarca.—You will distinguish it likewise from anasarca—local dropsy of the cellular membrane—and particularly from that enlargement beneath the thorax which has the strange appellation of water-farcy, but having no character whatever of farcy, and by this false title leading to many a blunder, and to mischief. Anasarca is debility; not inflammation of the absorbents. It is an indication of general debility to a greater or less extent, and, properly treated, soon disappears, except that occasionally at the close of some very serious disease it indicates the breaking up of the constitution.

Farcy Contagious.—Of the contagiousness of farcy there can be no doubt; but it does not commence until ulceration has taken place. The matter of farcy alone is the medium of communicating the disease. It does not, however, appear to be so contagious as glanders. A farcied horse does not by far so often infect his companions as does the glandered one. Still it is right to be on our guard, and to take every possible precaution. The mode of infection is probably the same, namely, the virus being brought into contact with some wounded or abraded surface.

Curative Treatment—Why Farcy admits of Cure.—Of the

curative treatment I am happy that I have far more to say than I had of glanders. This may seem strange. Glanders, a simply local complaint, bids defiance to all our means and appliances; yet when the virus has spread through the frame, and affected the greater part or the whole of the absorbent system, it is occasionally manageable. Why, gentlemen, it is the very fact of its spreading that enables us to account for this. When it is simply local, all its virulence is concentrated on one small surface, and no medicine can be brought to bear with sufficient power on that plague-spot; but, when it begins to spread, and before the tissues which it now involves are too much injured and disorganized by its poison, its intensity is diminished. As inflammation of almost every character becomes diffused, it less powerfully affects the individual portions over which it spreads; it is diluted—lowered; and now, as it becomes in some degree constitutional, it may be attacked with greater hope of success. We have many medicaments which will exert a considerable general influence, but we have none that have a sufficient local determination and power. We can now find a counter-irritant, a stimulus, a tonic as diffusible and as energetic as the poison.

But whatever, gentlemen, may be thought of this, however it may wear the appearance of mere hypothesis, the fact is undoubted, that while glanders has baffled every practitioner in every age, farcy is, occasionally at least, under his controul. Let it be remembered, notwithstanding, that even here our power is cribbed, confined, and it is only during one short and fortunate moment that we are enabled to exert it with the slightest effect. The virus may be diffused, but it has not produced all its deleterious influence; the new tissue is diseased, but it is not yet disorganized; the seed is sown, but it has not yet taken root: confirmed farcy is quite as untractable as the worst form of glanders.

The local Treatment of Farcy.—Our treatment of farcy will be both local and constitutional. We can here fairly get at the seat of disease, at least while the superficial absorbents alone are concerned. The budding-iron, applied with sufficient severity on every knot or ulcer, will destroy the diseased surface, and the virus that lies upon it. A crucial incision should be first made through the integument, and then the iron will be brought perfectly in contact with the whole of the part. When the disease has proceeded somewhat further than this, and ulcerations, and these threatening to be extensive, have appeared, the case should not be abandoned without a struggle. First in the list, and the most efficacious of all, stands the chloride of lime. By it the progress of decomposition will be partially or entirely

arrested, or, rather, it is another substance which will be decomposed and destroyed—the virus which was so actively employed. The fœtor removed, and the virus in some measure destroyed, the ulcers should be frequently washed with some stimulating lotion. I know none better than the diluted nitric acid, in the proportion of one part of the acid to eight of water. This may be often and freely applied, and occasionally doubled in strength, if the appearance of the wounds is not satisfactory—resorting again to the chloride of lime, if any sanious discharge or fœtor should return. Mr. Turner recommends a strong solution of the sulphate of iron in these cases, plentifully applied over the ulcers, and well rubbed into the sound part.

The Constitutional Treatment.—Farcy, however, can scarcely be considered as a mere local disease. It occupies so large a surface, and threatens to involve, and speedily involves, so much more, that we eagerly inquire for some auxiliary which will affect the constitution generally. Have we that which will support the frame against the ravages of the disease, or which will excite a different, and as powerful an action over the various tissues? Tonics are plainly indicated. Practitioners have again and again gone through the whole list of them, vegetable and mineral, and too often without the desired effect; almost invariably so, when considerable disorganization has taken place; and, I fear, in the majority of cases, when the disease is attacked in an earlier stage. That which I have found to be most useful, and on which I believe practitioners generally place the greatest dependence, is the bi-chloride of mercury (corrosive sublimate), in doses of from five grains to a scruple, morning and night, first dissolved in alcohol, and given in a pint of gruel. It is extraordinary how long this medicine may sometimes be given without affecting either the bowels or the salivary glands. It must, however, be carefully watched, and given in diminished doses, or omitted altogether, when ptyalism is produced. Mr. Turner adheres here, as in glanders, to the sulphate of iron, given in solution, as the ordinary drink of the horse. As for arsenic, subacetate of copper, and sulphate of copper, I must acknowledge that I have rarely seen any good effect produced; and the vegetable tonics are not here sufficiently energetic. The effect must be rapidly produced, and must be intense. Mashes, green meat, carrots, are excellent auxiliaries,—they are, in fact, indispensable. Mr. Blaine tells us, that a horse, so reduced by farcy as not to be able to stand, was drawn on a hurdle into a field of tares, and left there to take his chance. When he had eaten all within his reach, he continued to scramble a little further in search of more, and at length got up, and ultimately recovered.

Cool and pure Air necessary.—I would here impress it upon you, as I did when treating of glanders, that as farcy is the result of our improper stable management, the very foundation of our method of cure must be a return almost to a state of nature. Cool and pure air, and plenty of green meat, and especially, if it can be got at, a salt marsh, must be our chief restoratives; or, at least, they must never be forgotten as indispensable auxiliaries in all our medical treatment.

The apparent Cure often deceitful.—Gentlemen, I have gone as far as I dared with regard to the curative treatment of farcy; but as the days of sanguine and often disappointed expectation are with me nearly gone by, and cold calculation and observance of actual result have succeeded, I feel myself bound to add, that in the majority, the decided majority, of the cases of supposed cure of glanders, the animal was only *patched up.* Six or twelve months scarcely pass ere we have grease, swelled legs, sudden lameness, cough, phthisis, glanders, or farcy again. Therefore do not always think that you have performed wonders when the poor emaciated farcied horse comes up plump and fat, every ulcer healed, and he, apparently, equal to any kind of work. Hope for the best; but do not inconsiderately give a prognosis which may not a little compromise your professional reputation, and prove of serious injury to your employer.

Sure predisposition to take on again the Disease.—Be assured that horses that have once laboured under an attack of farcy, however perfectly they may seem to have been cured, are always in jeopardy. The foe is beaten, he is driven to some unsuspected lurking retreat, but he is not destroyed. He is slowly acquiring new strength, and will probably burst from his ambush when you least expect it. I may not, perhaps, be justified in positively affirming that the virus is still existing; but long experience forces on me the mortifying fact, that there is at least a predisposition, and a strong one too, again to take on the disease. The tone and strength of the constitution were too effectually undermined to be ever again essentially and substantially repaired. Catarrh will run on to glanders; grease will precede farcy; nay, the commonest operation can scarcely be hazarded. Professor Peall says, that a horse that had been severely affected with farcy was cured, and remained perfectly sound for more than a year. At this period he was castrated, and appeared to be going on remarkably well; but on the eighth day he broke out with the button farcy over the greater part of the surface, and which proved to be a breaking up of the constitution, and he died. Do not be discouraged by this. Do not abandon the farcied horse to his fate. You are able to

do much: you will sometimes effect a perfect cure. But be prepared for the worst. Guard your prognosis; and guard the seemingly recovered animal from the exciting cause of this and every other disease.

Conclusion, Caution, and Encouragement.—And now, gentlemen, I am not sorry that I have done with these misunderstood, mysterious, untractable, and treacherous diseases. The hints which I have dropped may at least be useful in giving you a more perfect conception of the diagnostic symptoms of these maladies and their insidious character; and more particularly in putting you on your guard against that which your experience in country practice, and the testimony of every intelligent farmer, and every proprietor of horses on an extensive scale, will point out to you as the most prevalent cause of it—CONTAGION.

As for the medical treatment of these diseases, I again repeat, while you are honest to your employers, be not discouraged. Nature has an antidote for every poison. The antidote for these will ultimately be known. Here is work for your ingenuity. Do not quite forget the indications of cure which I have traced out; and remember, that he who does discover a remedy for glanders, as well as for rabies, will deserve well of his profession and his country.

THE VETERINARIAN, MAY 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—CICERO.

AMIDST the occasional rebuffs that we meet with in the practice of our undervalued profession, we naturally look about for, and we are not slow in finding, some consolatory circumstances to reconcile us to ourselves, and to justify us in our own minds for having embarked our reputation and our fortune in such a pursuit: and that which oftenest presents itself (and the more we regard it the more satisfactory it is) is, the value and worth, not merely pecuniary but intellectual and moral, of our patients.

The superficial or the selfish observer, the ignoramus or the human brute, may regard the domesticated animals merely as machines created to administer to his pleasure, and which he

may torture or destroy as caprice may suggest; but he who has looked around him with an observant eye—the veterinarian, whose duty as well as whose delight it has been to study the conformation and the character of inferior animals, both physical and moral, has seen enough to admire and to love, in those whose medical guardian and friend he has undertaken to be, and to make him regard with sovereign contempt the sneer of the bystander, whether he be a learned man or a fool.

The intellectual and moral qualities of the inferior animals is a subject highly interesting, but much mystified and misunderstood—pushed, perhaps, to a somewhat ridiculous extent by the visionary—and too contumeliously dismissed by him who would monopolize to himself the care and benevolent regard of the great father of all.

We have been accustomed, and properly, to regard the nervous system, or that portion of it which is connected with animal life, that which renders us conscious of surrounding objects, susceptible of pleasure and of pain—we regard this as the source of intellectual power, and moral feeling. All our knowledge is derived from our perception of things around us. A certain impression is made on the ultimate fibrils of a sensitive nerve. That impression, in some mysterious way, is conveyed to the common sensorium, the brain; and there it is received, registered, stored, and compared—there its connexions are traced, and its consequences appreciated; and thence result, and in proportion as a variety of impressions are conveyed and due use is made of them, intellectual power, and a sense of truth and duty.

Then our subject, the intellectual and the moral feeling of brutes, or the mechanism on which these depend, is divided into two parts—the portion which receives and conveys, and that which stores up and compares and uses the impression.

The portion which receives and conveys is far more developed in the brute than in the human subject. Whatever *sense* we take, we clearly perceive the triumph of animal power. The olfactory nerve in the horse, the dog, the ox, and the swine, the largest of all the cerebral nerves, has much greater compa-

rative bulk in the quadruped than in the human being; and the sense of smell, bearing portion to the development of the nerve on which it depends, is far more acute. In man it is connected with pleasure, in the inferior animal with life. This portion of our subject was illustrated in THE VETERINARIAN for February last. The relative size of the nerve was spoken of as bearing an invariable proportion to the necessity for an acute sense of smell in the various animals—large in the horse, compared with the olfactory nerve in the human being—larger in the ox, who is not so much domesticated, and oftener sent into the field to shift for himself—larger still in the swine, who has to search for a portion of his food buried under the soil, or immersed deeply in refuse and filth—and yet larger in the dog, the acuteness of whose scent is so connected with our pleasures.

This illustration might be pursued with reference to the optic and the auditory nerves—the fifth pair, and the portio-dura of the seventh;—and if we still further pushed our inquiries, we should find that even the *organic* nerves were in a remarkable degree more developed. The medulla oblongata, and the superior cervical ganglion—the sources of the respiratory system and of all digestive, secretory, reproductive power,—these are developed in the brute to a degree never seen in man.

All this is what we should expect. There is much wisdom and benevolence in such an arrangement. The keenness of scent, and the strength of sight, and the acuteness of hearing, which necessarily follow from this mechanism, better prepare them for our service: they are the qualities which constitute much of their value. And then, the development of the organic nerves, as well as the sensitive:—the brute requires the admonitions which result from them:—the teachings of instinct—in his wild state, at least, he has no other monitor to instruct and to guide him: the purposes of food and the faculty of reproduction depend upon them; and even the superior bulk and perfection of these organic nerves render him more valuable to us: the worth of the horse depends on his wind; that of the ox, on his disposition to fatten.

Then the nerves both of animal and organic life are more developed—the materials of knowledge are more numerous—the

impressions are more acute; but now comes the more important consideration—the storehouse of these materials—the recipient of these impressions—the brain. What find we there?

Anatomists have compared the relative bulk of the brain in different animals, and the result is curious and interesting. In man, the weight of the brain amounts to $\frac{1}{30}$ of that of his body; in the Newfoundland dog it is $\frac{1}{160}$, in the poodle and the barbette it is $\frac{1}{100}$; in the ferocious and stupid bull dog $\frac{1}{300}$; in the horse it is $\frac{1}{400}$; and in the ox it is $\frac{1}{800}$. The largest brain which Sömmering found in a horse weighed 1℔. 1oz.: the smallest in the adult man was 2℔. 5½oz.

There is something more than this. When cut into, the brain seems to be composed of two distinct substances, the central or *medullary*, of a white colour—that which is connected with the origins of the nerves, or which is the origin of the nerves—and another portion, of a different colour, consistence, and minute organization—distinct from, not running into it, or proceeding from it—principally occupying the external part of the brain, but striæ or portions of it found everywhere, and at the origin of every nerve. This anatomists recognize under the name of the *cortical* or *cineritious* portion.

These vary in their relative proportion in different animals. Where the animal nerves are developed, as in inferior animals, the medullary portion prevails; where the animal nerves are smaller, the cortical substance proportionally preponderates. The horse will afford us an apt illustration of this. His whole brain is not one half so large as that of the human being; but the medullary substance, the mass of nervous origins, is many times as large as in man; and the cortical proportion is in the same ratio diminished. In the monkey tribe the comparative bulk of brain is nearly equal to that of man; but in these animals it is made up of medullary matter principally—in the human being the cortical abundantly preponderates: in the one, there is that which is connected only with animal existence; in the other, the greater proportion is devoted to the faculties of the mind: and thus it results that the inferior animals with larger nerves, and more medullary substance, have far acuter senses; and that man, excel-

ling them in the general bulk of his brain, and more particularly in the cortical portion of it, has far superior powers of mind.

Here again is wisdom and benevolence. In their wild state, the brutes have no concern, and no idea beyond their food and their reproduction—in their domesticated state they are destined to be the servants of man: their senses qualify them for this service; but were proportionate intellectual capacity added to this, were they made conscious of their strength, and of the objects that would be effected by it, they would burst their bonds, and man would, in his turn, be the victim or the slave.

Still, however, the conformation connected with animal and intellectual power is the same; the organization is the same, the connexions, the functions the same; and the only difference is in the proportion of the parts: and thence results this important conclusion, howe'er proud man may hesitate to acknowledge it,—that the distinction in the intellectual, ay, and even the moral qualities of the biped and the quadruped, is in degree and not in kind—that the one being advanced and improved by circumstances, and the other retarded or contaminated, there may, there often is, more difference between the cultivated and the savage and depraved man, than between the biped and the brute.

But this deserves more inquiry. In order that the impression conveyed to the brain should be registered, compared, and made the foundation of future improvement, it is necessary that the mind should, for a certain period of time, steadily regard it to the exclusion of almost every thing else. This is the faculty termed *Attention;* that which distinguishes the promising pupil from him of whom no good hope can be formed—the scientific man from the superficial and ignorant. The difference in the intellectual powers, and the valuable acquirements of individuals, depends on the relative power of attention. Without it our conceptions are obscure and confused, our acquirements evanescent. There will be no train of useful reflection, no accomplishment of praiseworthy and important purposes. Except we can for awhile abstract ourselves from every surrounding object, and be comparatively insensible to every thing that would distract the mind, no unusual acquirements can be made, no valuable object obtained.

The power of keeping the mind steadily bent upon one purpose, is the grand secret of intellectual and moral improvement.

Do we find this habit of attention in the brute? Yes, often, and to a very considerable degree. The cat sitting motionless, hour after hour, watching for prey; the terrier, with every faculty in his eager watching for the vermin; the sporting dog standing staunch to his point, however he may be annoyed by the blunders of his companion, or unskilfulness of his master; the fox hound, insensible to a thousand scents, deaf to every sound, while he anxiously and perseveringly picks out the track of his prey;—these are illustrations of the power of attention—attention often wasted on trifles, but the foundation of all that is valuable. It is said that the staunch dogs of Captain Thornhill would remain fixed in their point long enough for the limner accurately to sketch their portraits.

The impression being received, and the mind having been employed in the examination of it, what becomes of it? It is treasured up in the storehouse of the mind, for future use, or bootless would be the attention at first bestowed. This is the faculty of *Memory*. We all retain easily and long enough the recollection of that which has been unusually pleasing or annoying to us; but the true art of memory consists in retaining a perfect conception of that which is useful.

No one can deny the power of memory in the brute, exerted with regard to trifles, and also with regard to that in particular in which the duty and service of brutes condescends to mingle and consists. A female elephant was lost, after having been in subjection and in training only two years. Fifteen years afterwards she was retaken; she immediately recognized her former driver; "he gave her his stick to hold, which she took with her trunk, and put into her mouth, and kept and returned it as she was directed, and as she formerly had been accustomed to do."

The horse never forgets a road that he has once travelled. A friend of ours had a very pleasing proof of this, as has been narrated in another publication. He had ridden thirty miles from home on a young horse which he had bred, and which had never before been in that part of the country. The road was difficult

to find, but by dint of inquiry he at length reached the place he sought. Two years passed over, and he had again occasion to take the same journey. No one rode this horse but himself, and he was perfectly assured that the animal had not since been in that direction. Some miles before he reached his journey's end he was quite benighted: he had to traverse moor and common, and he could scarcely see his horse's head. The rain began to pelt: "Well," said he, "here I am lost, absolutely lost; I know not, nor can I see an inch of my road. I have heard much of the memory of the horse; it is my only hope now; so there"—throwing the reins on his horse's neck—"Go on." In half an hour he was safe at his friend's gate.

Of the memory of the dog, and the recollection of kindness received, there are a thousand stories, from the return of Ulysses to the present day, and we have seen enough of that faithful animal to believe most of them. An officer went abroad with his regiment during the American war. He had a fine Newfoundland dog, his constant companion, and who was much attached to him, whom he left with his family. After the lapse of several years he returned. His dog met him at the door, leaped upon his neck, licked his face, and then fell and expired with joy.

Of the accuracy and retentiveness of memory of the dog, as it respects the instruction he has received from his master, we have abundant proof in the pointer and the hound. It may be with him as with the biped, that the lesson must sometimes be repeated, and even impressed upon the memory in a way not altogether pleasant; but at length it is impressed, and that indelibly. The dog comprehends every part of his duty; he recollects the meaning of every command, nay, of the slightest movement, and implicitly obeys; and his obedience is prompted by that which the biped does not always exhibit—the desire to serve and amuse.

The stupid sheep will afford us an elucidation of the remembrance of objects early seen. The Ettrick shepherd tells us, that "a shepherd in Black-house bought a few sheep from another in Crawmell, about ten miles distant. In the spring following, one of the ewes went back to her native place, and yeaned on a wild hill, called Crawmell Craig. On a certain day,

about the beginning of July following, the shepherd went and brought home his ewe and lamb. and kept the lamb for one of his flock.

The lamb lived and throve; became a hog, and a gimmer, and never offered to leave home; but when three years of age, and about to have her first lamb, she vanished, and the morning after, the Crawmell shepherd, in going his rounds, found her with a new-yeaned lamb on the very gair of the Crawmell Craig, where she was lambed herself. She remained there until the first week in July, the time when she was brought home a lamb herself, and then she came home with her's of her own accord; and this custom she continued annually, with the greatest punctuality, as long as she lived. All the lambs, when they were old enough, began the same practice, and the shepherd was compelled to dispose of the whole breed.

Connected with the faculty of memory is the wonderful power of *Association*. One circumstance will bring to mind a whole train of ideas. One link being obtained, the whole chain of reasoning or instruction is recollected. This mental power is intimately connected with the improvement of the human mind. It is strong enough in the brute. The pointer will be quiet enough while his master has on his usual apparel; he will scarcely wish to accompany him abroad: but the moment he sees the shooting jacket or the gun, he is all ecstacy, because he associates with it the recollection of many a day's sport; and (although we must not go on too fast—we have not yet arrived at the *reasoning* faculty) if he suspects that he may possibly be left behind, he will steal out, and anxiously await the arrival of his master on the road that he usually takes.

Dogs that are not used for sporting purposes know the meaning of the hat in a moment, and are almost equally delighted, and on the alert.

Mr. Dibdin relates the following story, illustrative of this power of association, as well as indelible affection:—" A gentleman was obliged to go a journey periodically; his stay was short, and his departure and return were regular, and without variation. The dog was always uneasy when he first lost his master, and

moped in a corner, but recovered himself gradually as the time for his return approached, which he knew to an hour; and when he knew that his master was not far from home, he bounded away to meet him. At length, the old gentleman grew infirm, and incapable of continuing his journeys. The dog, by this time, was also grown old, and became at length quite blind; but this misfortune did not hinder him from fondling upon his master, whom he knew from other persons, and for whom his affection rather increased than diminished. The old gentleman died. The dog watched the corpse, blind as he was, and did his utmost to prevent the undertaker from screwing up the body in the coffin, while he most outrageously opposed its being taken out of the house. He now grew disconsolate, lost his flesh, and was evidently verging towards his end.

"One day he heard a stranger come into the house, and rose to meet him. His master, when old and infirm, had worn ribbed stockings for warmth. This gentleman had stockings on of the same kind. The dog thought that it was his master, and began to demonstrate the most extravagant pleasure; but upon farther examination, finding his mistake, he crept into a corner, and expired."

Imagination is that faculty of the mind by which we recal parts and portions of former impressions, or instructions, combining them in different ways, forming new images—fanciful, or absurd, sublime or ridiculous; the amusement of an idle hour, or the effect of a happy and laboured combination, and treasured in the memory as the source of future pleasure or improvement. Memory recals the past; imagination paints the future. It pictures a disagreeable and painful scene, and we despond: it paints that which is pregnant with delight, and hope springs up in the mind. Many of the scenes delineated by imagination never can be realized—they are mere day-dreams; others are more faithful portraitures of that which is to come. No one can doubt the existence of imagination in the brute. We perceive it in his dreams;—he runs, he hunts, he fights, when the external senses are asleep. When his master takes his gun, it is the anticipation of the pleasures of the field that

animates the dog, and produces the most boisterous ebullitions of joy. It is the anticipation of the pleasure he shall derive from the return of his master, that makes the dog stand hour after hour, watching for his appearance: here imagination presents the pleasure that will attend his return.

So far as we are able to ascertain the workings of their mind, there is a very important difference in the faculty of imagination in the human being and the brute. In them it is exerted solely on their present and future sensations: it has reference to some expected pleasure, or pain. In our minds it takes a wider range. Self is forgotten: it concerns itself with strange and sublime or fanciful theories. The mind is in search after truth, and often enabled to grasp it, although as frequently left to wander in error. This is one of the instances in which we are superior to the brutes that perish; but, after all, it is a difference more of degree than of kind. We shall return to this subject hereafter.

Our readers will not forget that the Annual Dinner of the Veterinary Club will take place on Thursday, the 10th instant, at the King's Arms Tavern, Bridge Street, Westminster, at five o'clock precisely. The members will be most happy to see their professional brethren from far or near, but request that the gentlemen, who intend to honour them with their presence, will favour the Secretary with an intimation of the same, on or before the 8th instant, directed to him at the King's Arms Tavern.

Sporting Department.

STEEPLE CHASES.

As these chases were connected with those which were recorded in our last number, we insert an account of them; but in future, except under particular circumstances, we shall not notice these break-neck exhibitions. This was a sweepstakes of twenty-five sovereigns each; and was run on Monday, April the 2d.

It was stipulated that the horses should carry 12st. each, and that the race should take place within fourteen miles of London; six of the previous subscribers forfeited, and the following four agreed to start:—

Mr. Elmore's Moonraker, rode by Mr. W. Bean.
Captain Horn's Red Rover, rode by the owner.
Mr. Johnson's Rattler, rode by J. Tilbury, jun.
Mr. Anderson's Grey Grimalkin, rode by J. Anderson.

It was agreed that the ground should be chosen by a sporting gentleman, and that the riders should be kept in ignorance of the country till the moment of starting. This was according to the true principles of steeple-chasing. The ground ultimately chosen was from the Windmill public-house, Beechy Heath, to a field adjoining Oxley Wood, a distance of about four miles. A more difficult country could not have been selected, being intersected with rasping fences, with the addition of two wide brooks, altogether presenting difficulties of no ordinary character at every point. The start was most brilliant; Moonraker made all the running, and kept the lead throughout, surmounting every impediment in the grandest style, and winning by full one hundred and fifty yards. Red Rover and Rattler kept close in his wake, while Grimalkin took a wider line, and thus was considerably out of his bearing, but still came in second, in consequence of Red Rover and Rattler having both had heavy falls;—the latter in following Moonraker over a high timber fence, rolled twice over his rider, Captain Horn also had three severe falls, and was a good deal bruised, but we hope not seriously, for a bolder and more expert rider we have never seen in the field. Moonraker came in without the least distress. Red Rover was a most difficult horse to ride, and especially against such an out-and-outer as Moonraker, and over such a rattling country. The distance was performed by Moonraker in sixteen minutes and a half.

MATCH BETWEEN MOONRAKER AND GRIMALKIN.

After the above gallant race, Mr. Anderson, considering that if he had been at a lighter weight, he would have had a better chance with Grimalkin, challenged Mr. Elmore to run Moonraker again, on the same day, for a hundred sovs. aside, provided he would give him half a stone (7lb.), and choose fresh ground. To this Mr. Elmore at once acceded, and the match was made to run at three o'clock. Mr. Hall was named to ride Grimalkin, and Mr. Bean to back Moonraker. A new country was selected while the horses were refreshing, and at the time appointed they were both brought out. The new ground chosen was from Scratch Wood, near Barnet, to a field near Bushey Heath, leaving the reservoir to the right. Moonraker, as in the first race,

took the lead in grand style, closely followed by Mr. Hall. On coming to a tremendous fence, Mr. Bean pulled, and said to Mr. Hall, "Now, I have given you the lead all the way, do you go a-head;" but Mr. Hall declined, and, after waiting some seconds, Moonraker took the fence with his usual courage, and got twenty yards a-head in the next field. Grimalkin was soon after him, and the race from this, which was in full view of the spectators on the Heath, was highly gratifying: every move of the horses could be seen, and every leap clearly ascertained. On coming to the last field but one, there was a deep wide brook bed, without water, which Moonraker cleared most admirably, and came straight for the winning point; not so Grimalkin, who, on getting over the brook, fell and threw his rider: there was not time to recover this accident, and consequently Moonraker won easily; and, no doubt had his late opponent, Grimaldi, been engaged in the same contest, he would have shared the same fate. Moonraker was in admirable condition, and never went better. Thus terminated a day which has added other laurels to Moonraker's fame. The country was admirably adapted to his slashing qualities, and would have given a breathing to the best in England.

ANOTHER STEEPLE MATCH.

A short time since, Captain Horn matched his horse Red Rover against Mr. Orbel's Broomfield, for one hundred sovs.; but, in consequence of Red Rover being last in the race against Moonraker, on Monday, the Captain was anxious to pay £20 forfeit. To this Mr. Orbel, deeming his winning a certainty, would not consent, but insisted upon running; and the match being p. p., there was no alternative for the Captain but to pay or run, and he accordingly preferred the latter; and it was agreed to run on Thursday last. The ground chosen was from Washen Bridge, near Greenford, to the Windmill at Hanwell, a distance of about three miles. Mr. Seffert rode Red Rover, and Mr. Stubbs rode Broomfield. The ground was light, and the fences very few and easy. Both jockeys had orders to wait; they therefore walked off, and did not commence a gallop till they reached the second field: here they set off together, Red Rover slightly leading, both evidently desirous of leaving the result to a last push. About a mile from the starting-point, however, Broomfield struck his fore legs against a stake-bound fence, which shook his rider from his seat on to his neck. Mr. Seffert perceiving this, with great judgment, seized the moment, and set his horse at the top of his speed, and slipped his adversary such a distance, that Broomfield could never recover it. Every nerve, however, was

strained to regain his lost ground, but without the shadow of a chance, Mr. Seffert winning by a whole field; neither of the horses was down. The result of this race was very different to the expectations of the sporting gentlemen—Broomfield being a thorough-bred horse, brother to John de Bart, and known to be an exceedingly fast horse; Red Rover was bred by the Duke of Portland, and is by Tiresias, but was sold from his Grace's stud on account of his temper: he has the look of a racer, possesses great speed, and is a high and fine fencer when his temper will permit. Captain Horn has thus won 100 sovs. instead of losing that sum, as every one expected would be the case, for he could not get a shilling off at any odds before starting.

NEWMARKET CRAVEN MEETING.

Monday, April 23.

The CRAVEN STAKES of 10 sovs. each, a. f. nine subs.

Col. Wilson's Chapman, 3 yrs. - - - - - - - -	(J. Day)	1
Sir M. Wood's Capt. Arthur, 4 yrs. - - - - - - - - - - -		2
Lord Chesterfield's Priam, 4 yrs. - - - - - - - - - - - -		3

The following were not placed: Lord Cleveland's Marcus, 3 years, and Mr. Walker's colt, by Partisan, out of Shortwaist, 2 years.

Betting 4 to 1 on Priam, and 6 to 1 against any other. Captain Arthur made running for about a quarter of a mile, when Chapman took it up at a pace somewhat better, but still far from good. Priam and Captain Arthur were well laid up. In this way they ran to the Abingdon Mile Bottom, where these two challenged Chapman, and ran him a tremendous race home. Priam gave way first of the three, and was beaten nearly a length. Captain Arthur ran stoutly to the end, and was defeated by a head only. The result was a thunderbolt

HANDICAP STAKES of 10 sovs. each, Ab. M. 18 subs.

Mr. Rush's Roadster, 3 yrs., 8 st. 8 lb. - - - - -	(Robinson)	1
Lord Orford's Grand Duke, 3 yrs., 8 st. 10 lb. - - - - - - -		2

The following also started:—Incubus, 3 yrs., 9 st. 10 lb. Vagrant, 3 yrs., 8 st. 10 lb. Blunderer, 3 yrs., 8 st. 10 lb. Lochinvar, 3 yrs., 8 st. 8 lb. Joan of Arc, 3 yrs., 8 st. 6 lb. Farce, 3 yrs., 8 st. 6 lb. Titania, 3 yrs., 5 lb. Carwell, 3 yrs., 8 st. 6 lb. Crispin, 3 yrs., 8 st. 5 lb. Dulcinea, 3 yrs., 8 st. 2 lb. Mersey, 2 yrs., 6 st. 3 lb.

Betting—3 to 1 agst. Incubus; 6 to 1 agst. Roadster; 7 to 1 agst. Titania; 7 to 1 agst. Carwell; 7 to 1 agst. Mersey; 8 to 1 agst. Lochinvar; 10 to 1 agst. Crispin. Grand Duke and Joan of Arc made the running, followed to the bushes by Carwell and Titania, where these two declined, and the other horses came up a few lengths from home. Roadster came up to the Grand Duke, and beat him by a head, after a race of great severity.

The RIDDLESWORTH STAKES of 200 sovs. each, h. ft. Ab. M., 17 subs.

Duke of Richmond's, by Moses, out of Dream - - (Boyce) 1
Lord Burlington's, by Bizarre, out of Mouse, 8 st. 7 lb. - 2
Mr. Day's Salute, 8 st. 4 lb. - - - - - - - - - - - - 3
Lord Litchfield, by Sligo, out of Ina, 7 st. 7 lb. - - - - - - 4
Mr. Roberts, brother to Cloudesley, 8 st. 7 lb. - - - - - - - 5

The following is the state of the odds:—

	April 3d,	6th,	9th,	13th,	16th,	20th,	23d.
Dream - - - - -				6 to 1	5	4	4
Mouse - - - - -		-	-	-	-	-	7 to 1
Salute - - - - - -		-	2 to 1	2	2½	2½	2½
Ina - - - - - -		-		5 to 1		3	4½
Brother to Cloudesley	2 to 1		4	4	4	3½	2½

We have seldom seen a worse lot of horses, or a more uninteresting Riddlesworth. Its effect on the betting will be very trifling. Brother to Cloudesley took the lead at a very moderate pace, Salute lying close at his heels; at the bushes he failed, and Ina gave way shortly after. Dream, Mouse, and Salute, were then nearly abreast, the two latter setting to work a good way from home. Boyce kept very quiet on Dream till a few strides from the chair, when he went before his horses, and won cleverly by a length. Deducting the per centages and the winner's stake, the Duke of Richmond nets £1,900 by the stakes. His Grace's success appeared to give very general satisfaction.

Tuesday.

MATCH 200 sovs. each, h. ft. last half of Ab.

Mr. M. Stanley's Crutch, 8 st. 7 lb. - - - - (Robinson) 1
Mr. Wagstaff's Saddler, 8 st. - - - - - - - - - - - - - 2

A very quick race; run and won by a neck only: 5 to 4 on the loser.

SWEEPSTAKES of 150 sovs. each h. ft. colts 8 st. 7 lb., fillies 8 st. 4 lb. D. M.

Lord Lowther's Messenger, by Partisan - - - (Wheatley) 1
Lord Stradbroke's colt, by Merlin, out of Brillante - - - 2
Mr. Hunter's colt, by Gustavus, out of Young Pipylina - - - 3

Six to 4 on Messenger, and 2 to 1 agst. Brillante. Messenger made all the running, and won very cleverly by a length. Previous to the race 1000 to 20 was laid two or three times against Messenger winning the race and the Derby.

MATCH 200 h. ft., 8 st. 3 lb. each, M. D.

Lord Verulam's Vestris - - - - - - - - - - - (Conolly) 1
Duke of Rutland's Clansman - - - - - - - - - - - - - 2

2 to 1 on Vestris, who won cleverly.

SWEEPSTAKES of 100 sovs. each, h. ft. colts 8 st. 6 lb., fillies 8 st. 2 lb., R. M., four Subs.

Mr. Vansittart's Darioletta colt - - - - - - - - (Boyce) 1
Lord Lowther's Bugle colt - - - - - - - - - - - - - 2

Won very easy, the winner the favourite at good odds.

SWEEPSTAKES of 100 sovs. each, h. ft., for colts 8 st. 7 lb., M. D., five Subs.

Duke of Richmond's c., by Middleston, out of Dandizette (Boyce) 1
Lord Exeter's c., by Mountebank, d. by Woful - - - - - - - 2

2 to 1 on Dandizette, who won cleverly by three-quarters of a length.

SWEEPSTAKES of 100 sovs. each, h. ft. M. D., five Subs.

Mr. Mills b. f. Kate, by Lapdog, 8 st. 2 lb. - - - - (Arnull) 1
Lord Jersey c., by Middleton, d. by Merlin, 8 st. 5 lb. - - - 2
Duke of Richmond's the Hermit, 8 st. 8 lb. - - - - - - - - 3

Six to 4 agst. Kate; 6 to 4 agst. Lord Jersey's; and 5 to 2 against the Hermit. A middling race between the first two, and won by three-quarters of a length. The Hermit was beaten a long way off.

SWEEPSTAKES of 100 sovs. each, h. ft. for fillies 8 st. 7 lb., D. M. six Subs.

Captain Byng's Dryad - - - - - - - - - - - walked over.

SWEEPSTAKES of 100 sovs. each, h. ft., for colts 8 st. 7 lb., fillies 8 st. 3 lb., M. D. nine Subs.

Mr. Roberts's c., by Merlin, d. by Skim - - - - (Wright) 1
Lord Orford's f., by Partisan, out of Stays - - - - - - - - 2
Mr. Henry's Nannette, by Partisan - - - - - - - - - - 3
Duke of Richmond's c., by Middleton, out of Dandizette - - 4

Six to 4 agst. Nannette; 7 to 2 agst. Stays; 4 to 1 agst. either of the other two. The Merlin colt made the running throughout, and won rather cleverly by half a length. Nannette was purchased at the sale of Mr. Maberly's horses for £570.

MATCH 150, h. f. R. M.

Mr. Granville's Landgravine, 8 st. 7 lb., beat General Grosvenor's f. by Truffle, out of Icaria, 8 st., by a length easy. Eleven to 8 on the winner, who was ridden by Conolly.

Tuesday.

BILDESTON PRODUCE STAKES of 100 sovereigns each, h. ft. colts 8 st. 7 lb. fillies 8 st. 3 lb. R. M. 3 lb. (allowed) 3 Subs.

General Grosvenor's b. c. Santillane, by Wrangler (J. Day) 1
Mr. Nelville's c. by Sultan, out of Waltz 2

Santillane the favourite, a fine race, and won by a neck only.

SWEEPSTAKES, 150 sovs. each, h. ft. for fillies, 8 st. 7 lb. R. M. 5 Subs.

Lord Chesterfield's Olga, by Paulowitz .....(Conolly) 1
Mr. Ridsdale's Fedore, by Figaro 2
Lord Exeter's Trick 3

6 to 4 on Olga, who won very easy by two lengths.

Match 100 sovs. h. ft. A. F.

Mr. Stonehewer's Zany, 8 st. 5 lbs. .....(Robinson) 1
Sir M. Wood's Riddlesworth, 8 st. 8 lbs..... 2

5 to 2 on Zany: won cleverly by two lengths.

Match 100 sovs. h. ft. R. M.

Mr. Ridsdale's St. Giles, 8 st. 2 lb. .....(Wheatley) 1
Captain Rous's Lioness, 9 st. 6 lb. 2

7 to 4 on the loser: a remarkably severe race, and won by a length only.

FIRST CLASS OF THE OATLANDS of 50 sovs. each, h. ft. D 7, Nine Subs.

Duke of Grafton's Oxygen, 3 yrs. 8 st. 9 lb.....(Conolly) 1
Mr. Watts' Mazeppa, 4 yrs. 8 st. 4 lb..... 2
General Grosvenor's Sarpedon, 3 yrs. 7 st. 9 lb..... 3

The following were not placed:—Colonel Wilson's Rotterdam colt, 4 yrs. old, 9 st.; Lord Exeter's Anthony, 3 yrs. old, 7 st. 6 lb.; Mr. Chifney's Snarl, 4 yrs. 7 st. 13 lb.; and Sir M. Wood's Capt. Arthur, 4 yrs. 8 st. 10 lb.

2 to 1 agst. Oxygen; 4 to 1 agst. Mazeppa (taken); 5 to 1 agst. Anthony; 5 to 1 agst. Rotterdam (taken); 5 to 1 agst. the Captain; and 7 to 1 agst. Sarpedon. The Rotterdam colt made first running, Sarpedon lying second: they continued in this order at a good steady space to the turn of the lands, where the horses closed; Mazeppa, Oxygen, and Anthony being in the first rank, and Captain Arthur in the rear, where he was found at the finish. Between the Duke's stand and the chain, Oxygen and Mazeppa singled themselves out, and ran a pretty race home, the mare winning cleverly by a length. Sarpedon and Rotterdam were about a length behind, at the upper side of the course.

Wednesday.

The Eclipse-Foot has closed with the entry of three horses only, viz.—Lord Chesterfield's Priam, Mr. Scott Stonehewer's

Zany, and General Grosvenor's Sarpedon. So much for exclusiveness. The following is the return of this day's races.

SWEEPSTAKES of 50 sovs. h. ft. for 2 year-olds, R. M.

Lord Litchfield's Terry Alt, 6 st. 8 lb. ..... (Nat.) 1
Mr. Cooke's Merlin colt, 6 st. 10 lb. 2
General Grosvenor's Kitty Fisher, 7 st. 3 lb. 3
Mr. Udny's Blue Stocking colt, 5 st. 10 lb. 4
Sir M. Wood's f. Reaction, 7 st. 7 lb 5

6 to 4 against Mr. Cooke's; 7 to 4 against Terry Alt: won by a head.

Plate of £50, 2 yrs. 7 st.; 3 yrs. 8 st.; 4 yrs. 9 st. T. Y. C.

Sir M. Wood's Crutch, 3 years ..... (Robinson) 1
Lord Exeter's Hæmus, 3 years 2
Colonel Wilson's c. by Emulous out of Spinning Jenny, 3 yrs. 3

Mr. Rush's Discord colt, 2 yrs.; Mr. Shard's Mayfly, 2 yrs.; and Mr. Walker's c. out of Shortwaist, were not placed. 7 to 4 and 2 to 1 on Crutch, and 4 to 1 against Hæmus. Crutch had it all his own way, and won easy by a length.

THE COLUMN STAKES of 50 sovs. each, h. ft. R. M. Thirty Subs.

Duke of Portland's f. by Tiresius, out of Emily, 8 st. 4 lb. (J. Day) 1
Mr. Batson's c. by Catton, out of Harriet, 8 st. 7 lb. 2

The following were not placed: Mr. Houldsworth's Corset, 8 st. 1 lb.; Mr. C. Wilson's Silvertail colt, 8 st. 7 lb.; Lord Exeter's Spencer, 8 st. 7 lb.; Lord Orford's Selema colt, 8 st. 7lb.; and Mr. Thornhill's Sal colt, 8 st. 7 lb.

The Column Stakes was the most interesting to betting men, but turned out a dull affair; the pace was wretched; no running being made till they got to the bushes, where Corset went a little in front. At the Abingdon Mile Bottom, Emily and Harriet came out and ran a close race home, Emily winning by half a length. 2 to 1 agst. Sal; 3 to 1 agst. Spencer (who was nowhere); 4 to 1 agst. Corset; and 5 to 1 against Emily, who won by half a length. The stake was worth nearly £9,000.

SWEEPSTAKES of 200 sovs. each, h. ft. for fillies, M. D.

Lord Exeter's Advance filly walked over.

SWEEPSTAKES of 50 sovs. each, h. ft. T. Y. C. Five Subs.

Lord Tavistock's Taurus, 5 yrs. 9 st. 10 lb. ..... (Wheatley) 1
Mr. Stebbing's Landrail, 4 yrs. 8 st. 6 lb. 2
Mr. Bloss's Elizabeth, 4 yrs. 6 st. 3
Mr. Russ's Oatlands, 5 yrs. 7 st. 13 lb. 4

7 to 4 on Taurus, 7 to 2 agst. Landrail, 4 to 1 agst. Oatlands, won by a head.

SECOND CLASS OF THE OATLANDS STAKES of 50 sovs. each, h. ft. D. T. Nine Subs.

Mr. Gully's Tranby, 5 yrs. 8 st. 9 lb. ..... (Scott) 1
Lord Wilton's Chancellor, 3 yrs. 7 st. 9 lb. 2
Lord Exeter's Bohemian, 3 yrs. 6 st. 12 lb. 3

The following were not placed:—Lucetta 5 yrs. 9 st. 5 lb. Schumla 4 yrs. 8 st. 6 lb. Spaniel 3 yrs. 7 st. 6 lb. won by a length.

On these stakes the odds are 2 to 1 agst. Chancellor, and 7 to 2 agst. Spaniel, 5 to 1 agst. Lucetta, and 10 to 1 agst. Tranby. Schumla and Bohemian made the running to the turn of the lands, where Tranby took it up for a little way, and then allowed Bohemian to continue it to the Duke's stand, where he again headed; Chancellor made his push a few lengths from home, could not get up, and was defeated by a length cleverly.

The match between Fuddler and Protocol created a great sensation: the avidity with which two or three parties betted 5 to 1 and 3 to 1 on Protocol, led many to think it was a "very good thing;" while some few hazarded an opinion of a stronger nature. The result electrified the bettors of the odds, who lost nearly £3,000; they evidently calculated on a different termination. The effect of the day's running was to put Sal, Spencer, and Schumla, out of the Derby betting—it went no further.

Thursday.

SWEEPSTAKES of 200 sovs. each, h. ft. D. M. Nine Subs.

Lord Exeter's Beiram walked over. General Yates's Daft Jamie withdrew his stake, and received 100 sovs. out of the forfeits.

SWEEPSTAKES of 200 sovs. each, h. ft.; colts, 8 st. 7 lb.; fillies, 8 st. 4 lb. D. M.

Lord Tavistock's Custard colt walked over. Lord Exeter's Byzantium withdrew his stakes.

SWEEPSTAKES of 100 sovs. each, h. ft.; colts, 8 st. 7 lb.; fillies, 8 st. 4 lb. D. M.

Lord Worcester's ch. c. Copper Captain .....(Robinson) 1
Mr. Vansittart's c. by Polygon, by Slight 2

The following not placed:—Lord Mountcharles's Caliban; Lord Litchfield's Ina filly; Lord Chesterfield's Brother to Benedict.

Betting—5 to 4 agst. Caliban; 5 to 2 agst. Copper Captain; and 5 to 1 against Slight. A very severe race in the last two lengths. The Captain came from the rear, and won by a head with great difficulty.

SWEEPSTAKES of 100 sovs. each, h. ft.; colts, 8 st. 7 lb.; fillies, 8 st. 4 lb. R. M.

Lord Lowther's Sceptre .....(Wheatley) 1
Mr. Sowerby's Castillian 2

The following also started:—The Silvertail colt, Palais Royal colt, and Terry Alt, 6 to 1 agst. Castillian; 4 to 1 agst. Silvertail; and 4 to 1 agst. Sceptre. Won by a neck after a fine race.

SWEEPSTAKES of 100 sovs. each, h. ft. Ab. M. Seven Sub.

Mr. Mills' Kate, 8 st. 1 lb. .....(Arnull) 1
Sir M. Wood's The Marshall, 8 st. 4 lb. 2

4 to 1 on Kate, who won very easy by a length.

THE CLARET STAKES of 200 gs. each, h. ft. D. I. Five Sub.

Sir M. Wood's Camarine, 8 st. 2 lb.....(Robinson) 1
Mr. Houldsworth's Circassian, 8 st. 2 lb. 2

3 to 1 on Camarine, who won by 30 or 40 yards.

STATE OF BETTING ON THE DERBY.

	April 3	6	9	13	16	20	23	24	25
Lord Exeter's Beiram	8 to 1	8½	10	9	7	6½	7	8	7½
Mr. Vansittart's Darioletta	20	20		17	12	11	10	9	6½
Lord Exeter's Byzantium	12	12	9	8	9	8½	12	11	
Mr. Gully's Margrave	12	12	16	12	12	12		12	13
Lord Exeter's Spencer	9½	9	9	9	14	13	13	13	
Lord Chesterfield's Non Compos ..	13	12	13	15	14	13	11	15	14
Mr. Ridsdale's Trustee	20	20	18	20	2	20		22	12
Mr. Turtle's Gratis	22	22		23	20	22		23	20
——— Minister	20	20		20		25		25	
Lord Mountcharles's Caliban ..	25	25		30	25	25		28	
Col. Wilson's Rotterdam.....						40		33	
Sir Mark Wood's Count Robinson	35	33		30	35	33			
Lord Lowther's Messenger				40	50	35		25	
Duke of Graftan's Pastille	30	30	30	30	40	40			
Sal								23	

OAKS.

Emiliana	8	8	7	6	6	7
Dryad	7½	7½	8	8½	8	8
Advance	8	8	8	10	9	9
Bizarre.....				10		
Eliza		9	9	10		
Whimsey		9	11	11		
Olga		16	16	16		10

Veterinary Jurisprudence.

THOM. *v.* HANTON.—*The Chords, or Chronic Tetanus.*

[Communicated by Mr. JAMES COWIE, V. S., Halkerton, N. B.]

SOME time ago, Mr. Thom, a farmer in this county, bought a horse at a fair, from Hanton, a dealer, for £27, with a verbal warranty of soundness. Mr. Thom rode the horse home, a distance of fifteen miles, pretty smartly, as it was proved that he went part of the road alongside of a coach, at the rate of ten or eleven miles an hour. When he reached home, the horse

was watered and fed as usual; and next morning, when he was taken out to a pond, he "could not bend his head to drink, and otherwise appeared stiff." He continued in that condition for two days, when he got worse, and "staggered and trembled if he was moved." A farrier was then called, who pronounced the horse to be "very ill with *a disease all over;*" and, without knowing its nature, "administered treatment *most approved* for any *uncommon* disease." Of course he or his fraternity would feel no difficulty in prescribing from so rich a stock of infallibly specific nostrums, as they must almost always be situated alike with regard to their knowledge of the nature of existing diseases. Albeit, as nature in this case had not been equal to the task of combating the disease and the *remedies* employed, the horse got still worse; and Mr. Thom was advised to warn Hanton of the circumstance, with a request that he would take the animal back again, and return the money, as it could not have been sound at the time of sale. No answer was returned by Hanton; and after a reasonable delay, and the horse getting no better, Thom sued him for the amount. *Defences were entered, a proof was led,* and after a long, tedious, and expensive litigation, judgment was given by both sheriffs* in favour of the plaintiff.

The nature of the case will be best understood by quoting part of the proof, not excluding the most ridiculous of that sworn to by the farriers, as it may afford some amusement to a portion of your readers, being a fair specimen of the *knowledge* possessed by quack practitioners.

There is a disease, it would seem, that affects the horse, of which, to the best of my recollection, no notice is taken, either at the Veterinary College, or University of London, called the Chords, or Chronic Tetanus; and the plaintiff in this case laboured to prove that the horse was affected with it, and succeeded in convincing the judges that it was.

I shall only give a summary of the evidence previously to the farriers being called.

Hanton proved, by the former owner of the horse and his servant, that it was sound, as far as they saw, when sold to him; and he proved by others, its apparent soundness during the three or four days he possessed it.

Thom then shewed, by his servants, how the horse, the day after being brought home, was affected; that he "trembled and shook, shewing a degree of stiffness of the neck so as to prevent his drinking or eating from off the ground."

Then followed first among the manufacturers of nail heads and consumers of specifics for the cure of all diseases, John

* Law cases on horses are decided in this country, almost always, by the county sheriffs, and not by jurymen.

Beattie, standing forth to deliver his *scientific* sentiments; who on being solemnly sworn, deponed, that he was called to the horse in question; he found him affected about the head with *something like* sleepy staggers, and *fever all over!* No *particular* fever, but *symptoms* of general fever, with *evident disease* over the *whole* body! and he gave the animal laxative and *tonic* medicines, &c. &c.

John Low was next examined. Has practised for thirty years; was called to the horse in question; found him affected with the disease called chords, and in an advanced state; *the brain appearing to be affected;* and the animal labouring under stupor, and exhibiting the symptoms of staggering, with such stiffness of the neck, back, and loins, that he could not reach his knee with his head.—Has seen several cases of the kind: it comes on gradually; could not come on in one night. The *first* symptom is a stiffness of the neck and muscles of the back: it arises from various causes, but generally from colds or external injuries—it is difficult *at first* to discover. He applied remedies most approved, viz. putting a rowel in the counter, and *introducing air below the skin, along each side of the neck, and cutting off a part of the tail!!* and blistering on the head and neck, and applying opening medicine. With this treatment the horse got so far better, that in three days he could bend his head a little. These are remedies which the deponent has *always* used in *such cases.* He attended the horse for two months, when he got so much better as not to require *him* further. It is a chronic complaint, and curable when taken in proper time. Approved of Beattie's treatment. Is acquainted with Blaine's work.

John Watson.—Has practised for a length of time. Knows the disease called chords. Saw the horse in question, and he was affected with chords, with some degree of locked-jaw, and *an affection of the brain, occasionally staggering:* it comes on gradually, proceeds from cold, and some times from external injury; may exist sometime before observed: loss of appetite is no symptom of the disease, as he has seen horses in *it* with a desire, without the power to eat; and this one seemed to be the same. *Approved of Low's treatment.*

John Attenburrow was next examined for the defendant respecting the nature of the disease. Deponed that he served *five years and a half* as an apprentice to Mr. Richard, of Nottingham; was *four months* at the veterinary college of Mr. Field, of Oxford Street, London. On being interrogated, deponed, there is no such medical term as chords; what is so called he terms *strangles.* On being asked whether a work-horse rode quick a mile or two, and then walked very slowly or left at a door, would be apt to take *the strangles,* deponed *in the*

affirmative, as over exertion will cause it as much as any thing; as likewise when a horse is suddenly cooled when warm, if off soft food. It can be cured undoubtedly by proper treatment. He consults Blaine as a book of authority. On being asked in reference to the treatment adopted, deponed that bleeding and blistering would make a horse *look stupid,* independent of disease!

Next comes the deposition of Thomas Smith, of Brechin, who follows pretty closely the false notions of the last witness. Had they both sworn that they consulted Gervaise Markham, of 200 year's standing, instead of the practical and useful Blaine, we should have accused them of retaining only the lamest of that writer's information. Smith deponed, he has practised for fourteen years: *knows* the disease called chords; considers the *proper name* to be *strangles!* A sudden transition from cold to heat and from heat to cold *will bring it on,* and that in six or eight hours, as he has proof every spring. It is a disease incident to all horses; but when *occasioned* by *heat, the preventing of it* might depend upon the after treatment. *That the maltreatment of one disease will bring on another, and a worse disease.* Knows a disease called sleepy staggers, or lethargy; the latter being the term best known *to him.* Has never seen this complaint come on rapidly: it is a complicated complaint.

Benjamin Kitching, of Perth, knows a disease called chords: it can be brought on in one night by a sudden transition from heat to cold; that it is a stiffness of the neck.

David Smith, of Fettercairn, studied under Mr. Dick of Edinburgh; knows a disease called chords, but more properly tetanus; that it may arise from any local cause, as from *contracted hoofs,* as they generally produce pain: *that this complaint is more likely to arise in horses with contracted hoofs than not.* The disease can be cured if properly treated. Saw the horse in question after he got better, and found him have contracted hoofs.

So much contradictory and inconclusive evidence had now been adduced, that, had it been carried farther among the same race of *professionalists,* it would have diverged into a mere farce of infamous quackery: recourse was, therefore, had to the opinion of Mr. Dick, acknowledged to be the most scientific veterinary surgeon in Scotland, and whose opinion on a rare disease will be read with interest, although, at the same time, we must not expect that he should have entered into any very profound disquisition before an interrogating court.

On being sworn, Mr. Dick described himself as lecturer on the veterinary art to the Highland Society. "Knows a disease called chords, or chronic tetanus, which is a spasmodic affection

of the muscles, depending upon a morbid state of the nervous system. It is not general stiffness, but the muscles of the neck, back, and loins are more particularly affected. It comes on gradually; is more common to old than young horses; it prevents the animal from bending his head. The first symptom is a negligence or carelessness, as it were, of drinking, or eating food from off the ground; and this arises from the general stiffness with which the system is affected: when coming out of the stall, he steps backward instead of turning round: in general he is a week or ten days labouring under the disease before he is so stiff as to be prevented from bending his head. The most rapid cases he has seen might have been one or two days; but in these cases the disease was acute tetanus, and not chords. During the disease, he may at times get down his head by an effort, especially when warm after travelling. Never saw a horse apparently well at night, and on the following morning so affected with chords, as to be unable to bend his head to drink. It would be a week or two before a horse could be discovered to be labouring under this disease by a farmer or farm servant. Riding a horse fast for an hour, and at the end of his journey, when warm, allowing him to drink cold water, and then to stand exposed to the cold air, would most likely produce acute founder; but might be the cause of other diseases, and, among the rest, chords. The disease is rare: never saw one die if properly treated; and what he recommends is gentle purgatives, opening diet, with comfortable clothing. They generally recover in six or eight weeks; but has known the disease continue for life. Is not aware that this disease has a different name than chords or chronic tetanus in any part of Scotland; but chords is sometimes applied to farcy-weeds, &c. Blaine's is a work of merit, and quite standard; White is of ordinary merit; and Clater's of no merit whatever."

Few remarks are necessary; your readers will best draw their own conclusions after a perusal. A few strictures on the evidence, however, I can hardly resist making. As to the justice of the sheriff's decision, no one can question it. Low and Watson both swore that the horse was affected with chords within twenty-four hours of the sale; and Mr. Dick affirms that chords is a chronic disease, and is some considerable time before its symptoms are apparent. It is doubtful, however, whether the horse in question laboured under chords at all. Several witnesses say that the brain seemed to be affected, the horse occasionally staggering. Now, I recollect a similar case at the College during my pupilage there, of a stout chesnut horse being affected with what may be described as chronic staggers; and I recollect seeing him morning after morning being taken out to grass for several successive weeks, with much inclination to eat, without the

power of bending his head. Blundering and ignorant farriers, or others, might have called his a defect in the muscles of the neck, back, and loins, or a diminution in the length of the neck, as well as what it really was,—a chronic disease in the brain alone.

The treatment of this poor animal, as deponed to by the farriers, affords but a comparatively slight example of the empiricism and presumptuous credulity of that description of practitioners who pretend to be the life preservers of "fair Scotland's flocks and herds,"—the labourers and inhabitants of the soil. Had not the horse got better, the specific *remedy* for chords would have been adopted; viz. cutting asunder the tendon of the muscle near its insertion at the point of the nose (the levator labii superioris), which, they say, would have slackened the neck and loins, as it (this muscle) *rises from the root of the tail, runs along the back and neck, and climbs behind the ear; and thus, from its extent and obstinacy, keeps tight the chords of the neck!!* This history I have got from several farriers who have performed the operation, and who believe in its efficacy.

It is needless to notice the evidence of Smith and Attenburrow; they both confound one disease with another, without understanding either;—"nothing more likely to be produced from over-exertion than *strangles* in any horse, whether old or young." —Fudge!—Yet they only correspond with the majority of the collective tribe on the occasion. But these are all men of experience; and we are told that, on that account, they deserve confidence. True; but what is the amount of their practice and experience? Do they not bleed on all occasions? Do they not purge on all occasions, at least so far as castor oil ean effect it? And do they not employ the same remedy for the same disease in all its stages?

I will, however, return to and finish the subject of chords:—The treatment as recommended by Mr. Dick is simple, and if it be successful, its simplicity is an additional recommendation to its adoption; but, if I may be allowed to hazard an opinion in opposition to that of such an eminent pathologist as Mr. Dick, I should recommend more energetic remedies.—Why should they not correspond in kind, if not in degree, to those employed in tetanus? What objection can there be to a smart bleeding—purging instead of laxative medicine, with the addition of anodynes, counter-irritation, &c. &c.?

A licentiate of Mr. Dick's informs me that he has seen two or three cases of chords, and that he treated them successfully upon Mr. Dick's plan, with the addition of a blister along the neck; so that upon the whole, notwithstanding my remarks, the lenient treatment may be the better of the two. Certainly nothing of an efficient nature was done to the horse in question,

and he recovered after being a month at grass; and the disease being entirely of a chronic nature, the *retarding* of its progress or *the abating of its power*, and not its *immediate removal* (the law which pretty nearly governs the treatment of all chronic diseases and that require time and patience for recovery), must be the main object in view; and to do this, uniform and steady applications are preferable to those necessary in urgent cases. In the latter, intervals of rest would of necessity supervene, to avoid the danger of wasting and weakening the animal, and during which a relapse might take place, or the powers of nature might be subdued; and then the most powerful medicines would have but a secondary or perhaps no effect at all.

SINGULAR TRIAL AS TO THE SOUNDNESS OF SOME LAMBS.

At the last Norwich Assizes, last week, an action was brought by one Everett against a farmer named Youell, to recover damages for the breach of a contract in the sale of fifteen score lambs, sold and warranted sound by the defendant to the plantiff. At the last Assizes this case was tried, and a Jury were locked up all night, and then they could come to no decision on the case. The present Jury was special, and the foreman was John Angerstein, Esq., the late High Sheriff for the County. The defendant sold several lambs to the plantiff; and a few days after one shewed symptoms of the rot, and fifteen died afterwards. It was proved that the plantiff's land was good dry land, and several witnesses said the lambs must have had the seeds of the disease when sold. On the other hand, it appeared the defendant had sold several lambs of the same sort to other persons, and they had not been attacked with the rot. It was contended that the plantiff's lands were calculated to produce the disease. After the whole day had been taken up by the evidence, the case went to the Jury on the opposite opinions of the witnesses for the plaintiff and those for the defendant, all of whom were men of experience and respectability. The Jury were locked up the whole of the night without fire, candle, food, or drink, with an intimation from Mr. Baron Vaughan that he should not discharge them without an affidavit from a surgeon that the health of any one of them would be endangered by a longer protraction of abstinence. At one o'clock on Sunday afternoon the Jury were starved into unanimity, and returned a verdict for the defendant.

[So far as we have been enabled to learn the facts of the case, it was one of peculiar difficulty. The lambs came from a farm which was not subject to the rot; and on the farm of the purchaser the rot was unknown: and yet they died of the rot. The question was, when and how they became infected. This was probably in the journey to or from the fair at Killingham.

The plaintiff imagined that he had a strong case from the cir-

cumstances that occurred at Killingham. The lambs arrived there very late on the evening preceding the fair. Every paddock and every yard was full, and the only place to which they could be taken for the night was a low common, a little way from Killingham, and which had the repute of being rotting ground. —The seller could not deny that the lambs were driven there; but he would not admit that they were rotted there, and maintained that it might have occurred on some part of the journey from the fair on the following day, or probably on the farm of the purchaser. He proved that the lambs were sound at the time of sale.—Edit.

A few days afterwards appeared the following curious successful application for a new trial.

Everett *v.* Youell.

This was an action on a warranty of lambs sold to the plaintiff. It was tried at the Assizes at Thetford, before Mr. Baron Vaughan, when a verdict was returned for the defendant.

Mr. Sergeant Storks moved for a rule, to shew cause why the verdict should not be set aside, and a new trial had, on the grounds,—first, that the verdict was contrary to evidence; secondly, that the Judge misdirected the Jury; and thirdly, that refreshments were supplied to one of the Jury while they were considering their verdict This case was attended with peculiar circumstances. The trial commenced at five o'clock on a Friday evening, and continued until nine, when it was adjourned until eight o'clock next morning: it lasted from eight till nine next day; and the Jury did not return their verdict until eleven o'clock on Sunday morning. The warranty was, that all the lambs were from one flock, and had belonged to one farmer; yet the contrary was established by the evidence. Refreshments were supplied to the foreman of the Jury while they were deliberating, which enabled him to hold out against the others; and before the Jury had decided on their verdict, the learned Judge came into court and told them, that, as they differed, the minority should yield to the majority. Now, he submitted, that the Judge was by no means justified in making such observations to the Jury,—he ought to have left the subject to themselves: by adopting that course he clearly transgressed his duty.

Lord Tenterden.—The fact of refreshments having been supplied to one of the Jury is not sufficient; you must carry it further, and shew how it affected the verdict. It does not appear that the juryman who got the refreshments had been in favour of the defendant; nor does it appear by whom the refreshments were supplied. You may punish the officer who attended the Jury for a neglect of duty. You may take your rule on the other two points, but not on the ground of refreshments.—Rule granted.

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ANATOMY OF THE HORSE.

[Continued from page 249.]

OF THE FOOT.

THE FOOT is the part upon which the animal stands; with which he treads the ground; and by which his body is supported. Of his whole structure it constitutes the basis.

Number.—Animals exhibit differences in the number of their feet, and accordingly have been distributed into classes, consisting of *bipeds, quadrupeds,* and *multipedes.* Bipeds include men and birds. Quadrupeds comprehend most of the land animals. Multipedes embrace insects. The *reptile genus,* such as serpents, &c. being without feet.

Toes or Claws.—Another classification of animals has been formed from the number of toes or claws their feet are cleft or divided into. Those possessing but one toe, and consequently an undivided foot, come into the class of *monodactyles, solipedes,* or *solidungulous animals:* they are the horse, the ass, and the mule. The *didactyles,* or two-toed class, embraces the ruminants—oxen, sheep, and goats. The *tetradactyles,* or four-toed, include the dog, the cat, and the hog.

Division.—Founded upon the obvious and important differences existing between the external and internal composition of the foot, a division has been made of its parts into those that are *sensible,* or *sensitive,* and those that are *insensible,* or *insensitive.* A more suitable phraseology would have been found in the terms *organic* and *inorganic,* since of the parts they are meant to distinguish, one possesses neither nerves, nor bloodvessels, nor absorbent vessels; while the others are furnished with all these attributes of organization.

The external part of the foot consists entirely of horn, and from such composition has got the name of *hoof.*

The internal parts consist of bones, ligaments, and tendons, besides structures *peculiar* to the foot.

Of the External Parts.

The Hoof.

The hoof is the horny case, or covering, nature has provided for the protection of the sensitive parts of the foot. It may be said of itself to constitute such a shoe, or defence, as enables the animal in his wild state to travel about in quest of food, not only without injury to the structures underneath it, but with a degree of elasticity that preserves his whole frame from concussion. Were one forced into any comparison of the sort, it must be admitted that the hoofs of animals bear some anatomical affinity to the human nails, or claws of other animals; though they are vastly superior in physiological importance to any such appendages as these.

Form.—Sainbel viewed the foot as "the segment of an oval, opened at the back, and nearly round in front." To a common observer, the hoof exhibits a conoid form; the part resting upon the ground being the basis—the vacuity above, the obtruncated apex. Mr. Bracy Clark avers that this view is incorrect, and that the general figure of the hoof is a *cylinder,* very obliquely truncated upon its ground surface. This he demonstrates in two ways; either by rolling up a piece of paper into the shape of a cylinder, and afterwards cutting one of its ends in a very slanting direction; or by taking a carpenter's square, and placing one limb beneath the foot across the quarters, then sloping the other backward against the side of the quarters, parallel to the front, when the edge of the iron will be found parallel to the wall of the hoof. This corrected view of its figure will serve to account for the general equiformity manifest in the hoof, and also for the undeviating correspondence found to exist between its slope, or slant, as well in front as behind, which in an ordinary or healthy foot may be estimated at an angle of 45°. Around the coronet, where the hoof unites with the skin, the cylinder is cut directly across its perpendicular—at right angles with it: it is the oblique truncation of its ground-surface that occasions the slant, which latter we may consequently increase at pleasure by any means that augment the former, viz. by lowering the heels; by cutting away a prominent frog; or by putting on thin-heeled shoes. At the same time that we increase the slant of the hoof, we increase the obliquity of the pasterns, and likewise proportionately augment the ground-surface of the hoof, from heel to toe, the breadth remaining unaltered; and in the same ratio, consequently, extend the surface of tread*.

* For further elucidation on the cylindrical form of the foot, consult Mr. Bracy Clark's works on the Foot of the Horse.

Spread.—By the *spread* is meant the inclination the hoof manifests when left unshod, around the toe and sides, to bulge, or protrude at bottom, whereby its ground-surface becomes augmented, particularly around the outer quarter. To a certain extent this is worthy of observation; although, in my opinion, it is to be regarded rather as an effect of *pressure* than one of abstract growth. The surface of inclination upon which the horn is produced has no such spread, nor can the hoof itself be said, *from growth alone,* to have any such *natural* tendency; but, as it continues to grow and shoot beyond the inner foot that produced it, and to which it was so intimately united, it yields to the pressure of the animal's weight, and bulges or spreads out, and more at the outer side than the inner, in consequence of the pressure tending more in that direction. If we examine a number of hoofs of neglected growth, and consequent exuberance and deformity, of various descriptions, we may discover that, in them all, the spread seems to have been the first or *incipient* deviation from that line of growth viewed as consistent with the health and well-doing of the foot. It is only in the unshod hoof that any spread is found: as soon as the ground-surface comes to be confined by a shoe, pressure can no longer exert its influence to produce such consequences.

Mr. Goodwin aptly observes, that "to take the form of the hoof correctly, we must strip it of its exuberant or superfluous parts, the same as one would pare the superabundant growth off our own nails. The neglect of this necessary preparative has led to considerable difference of opinion about the natural, healthy, or true form of the ground-surface of the foot. Mr. Bracy Clark, I conceive, has inclined to the side of error in this particular; though, in the substitution of the cylindrical for the conical figure of the entire hoof, he has certainly the advantage of other writers. His natural foot *(Plate* 1*)* is one with *great spread* to it, much of which the smith would find it necessary to deprive it of, *even on the first shoeing;* and the protuberance of the outer quarter (which Mr. C. points out as an attribute of health) being *wholly owing to the spread,* will, of course, disappear with the annihilation of the spread*."

Although Mr. Goodwin has not here explained what he conceives to be the origin or cause of the spread, it is evident we both concur in viewing it rather as a *deviation* from health or nature than a circumstance worthy of the consideration it has been accounted of by Mr. Clark.

Colour.—Hoofs are black or white, or some intermediate shade, or they may exhibit a black and white striped or marbly

* Goodwin's New System of Shoeing, edit. 11, page 33.

aspect. It is an old observation, and one that passes current among us at the present day, that black or dark-shaded hoofs possess greater strength and durability, and indicate less proneness in the feet to disease, than such as are composed of white or striped horn. The rationale of which appears to be, that white horn (the same as white hair) is the product of parts weaker by nature than such as produce dark or black horn, and, being weaker, consequently are more liable to disease, less able to resist those impressions that tend to disorder. White hoofs are more porous than black ones, and consequently absorb moisture and lose it again by evaporation with more facility: a fact that may probably aid us in accounting for the failures attributed to them.

Magnitude.—It requires no veterinary skill to discover any very material disproportion in the magnitude of the foot: it will strike us at once as being *large* or *small*, in comparison to the limb or the size of the animal. A foot of any description that is out of proportion is to the horse possessing it more or less objectionable: but for all that, these out-of-proportion feet, abstractedly considered, have their advantages as well as their disadvantages. Sainbel tells us, that a large wide hoof, by extending the surface of tread, "will increase the stability and firmness of the fabric;" but then, he adds, "this partial advantage grows into an evil when it becomes applied to a body capable of translation, and considered in a state of actual motion; because, then, the mass and might of the foot overburthen the muscles of the extremity." And because, I would add, the surfaces of contract being greater, the attraction of cohesion becomes greater, and so much the more muscular force is required to raise the foot (particularly in moist ground) from the earth. Besides which, a large foot is apt to become objectionable from its striking, during action, the opposite leg. On the other hand, it is contended, that a large foot will not sink so deep into soft ground as a small one, and consequently will not demand so great an effort of strength to draw it out. This is an argument, however, that can only hold good under the supposition, that in both cases the muscular strength is equal, which we know but rarely to happen; in general, broad or flat-footed horses possessing superior strength; small narrow-footed ones, superior speed. There cannot be a doubt about a large foot being unfavourable for speed; a small one for stability: neither one nor the other can be indiscriminately found fault with: both within certain limits possess their respective advantages; though to turn out as such, they each of them require to be combined with suitable conformation and action.

Large bulky hoofs are found to be mechanically weaker than others, in consequence of being composed of a thin, soft, porous

description of horn. Sainbel ascribes all this to "a relaxation of the fibres composing the hoof: in which case, the diameters of the vessels are increased, the porosities are multiplied, and the fluids abound in them in too great quantities; consequently this kind of foot is soft, tender, and sensible." Small feet, on the contrary, in general possess a close woven horn, thick in substance, and consequently prove strong: they are rather oval than circular in figure, with great depth of substance, and are found to be of a durable nature. "In feet of this description," says Sainbel, "from the too close union and too close tension of their fibres, the vessels destined to conduct the nutritious fluid are contracted and obliterated; whence proceeds that dryness of the part which renders the horn brittle and liable to split*."

Division.—To the common observer the hoof appears to consist of one entire or indivisible case; but the anatomist finds, by subjecting it to maceration, or coction, or even to putrefaction, that it resolves itself into three separate pieces: still, so long as the hoof maintains its integrity, such is the force of cohesion existing between these three parts, that we as easily rend it in any other place as dissever one of its jointures. These constituent parts are the *wall*, the *sole*, and the *frog*.

The Wall.

The wall or crust is the part of the hoof which is visible while the foot stands upon the ground. It forms a circular boundary wall or fence inclosing the internal structures. On taking up the foot, we find the wall prominent all round beyond the other parts, making the first impression upon the ground, and evidently taking the largest share of bearing. It is, the part to which the shoe is nailed. It is, in fact, the most important division of the hoof; appearing to form (in the words of Mr. Clark) "the basis or first principle in the mechanism of the hoof, the other parts being all subordinate to this."

Situation and Relations.—The wall takes its beginning at the coronet from the terminating circular border of the skin, with which it is intimately united; their line of union being concealed by a row of overhanging hairs. From the coronet the wall descends in an oblique direction to the bottom of the foot, where it embraces the sole, and terminates in a circular projecting border. The anterior and lateral parts of the hoof are formed entirely by the wall; but at the posterior part, instead of the heels of the wall being continued one into the other so as to complete the circle, they become inflected, first downward, afterwards forward and inward, and are elongated in the latter direction

* Sainbel's Lectures on the Elements of Farriery.

until they reach the centre of the bottom of the foot, where they terminate: these inflections or processes of the wall constitute the *bars*. Altogether, the wall may be said to form about two thirds of the entire hoof.

Connexion.—Superiorly, around the coronet, the wall is united with the skin; inferiorly, within its circumferent border with the sole; posteriorly, between its heels with the heels of the frog; inferiorly, between the bars with the sides of the frog; and internally, with the sensitive laminæ. Let us now consider the wall in its detached or separate state.

Figure.—That of a hollow cylinder, having the side presented to the ground cut much aslant, and whose circle exhibits a *hiatus* or deficiency behind, from the lateral boundaries of which issue two narrow processes or appendages. Taking a lateral view, the wall assumes a conical shape, being broad and deep in front, and gradually narrowing as it stretches backward.

Division.—For facility of reference, and in aid of our descriptions, we distinguish in the wall, First, the *toe;* secondly, the *quarters;* thirdly, the *heels;* fourthly, the *superior* or *coronary border;* fifthly, the *inferior* or *solar border;* sixthly, the *laminæ* or *lamellæ;* lastly, the *bars* or *appendages*.

THE TOE forms the bow or front of the hoof, and comprehends about two thirds of the superficies of the wall. It is the deepest, broadest, and thickest part of the wall; for reasons that will appear hereafter. It exhibits a degree of slant about equal, naturally, to an angle of forty-five degrees; though there are variations from this which (as was explained before) will be found, in a measure, to be dependent upon the oblique truncation of the cylinder. When we come to understand the physiology of this part, however, a more operative and efficient cause for this variation will be found in the weight the wall has to sustain, and in its own mechanical strength or force of resistance: on which principle it is that light horses, thorough-breds, and poneys, as well as mules and asses, have *upright* or *strong feet* (i. e.), walls but moderately sloped; whereas heavy horses, cart-horses, and coach-horses, have commonly *flat* or *weak feet* (i. e.), walls that slant immoderately. And (as was before observed) upon the degree of obliquity of the wall must very much depend that of the pasterns. In estimating the slant or slope of the wall, it is proper to distinguish between that which is consequent on the detruncation of the hoof, and such as is the effect of a burthen under which the wall succumbs. The depth of horn in front of the toe, measuring from the termination of the skin to the most prominent point below (and supposing the hoof to be cut and ready to receive the shoe), may be rated at about three and

a half inches. The bow or degree of convexity of the toe in front must depend upon its obliquity as well as upon the circularity of the foot. The thickness of the horn composing the toe may be estimated at three eighths of an inch, or from that to half an inch, and this substance is the same from immediately beneath the coronary circle to the junction of the wall with the sole; at which part there is an accession of horny matter to block up the interstices between the laminæ, and also to fill the angular vacuity that would otherwise exist here between the wall and sole. In the forefeet, the toe is thicker in substance than either the quarters or heels: but (we have it from Sainbel) "in the hind, on the contrary, the heels and quarters are generally thicker than the toe."

THE QUARTERS are the portions of the wall intermediate between the toe and the heels. They are commonly described as standing *upright*, and, according to a carpenter's square set against the wall, so they appear to do; this is not, however, the view the anatomist ought to take of their position: to him the oblique course of their component fibres, together with the slant of their laminæ, demonstrate that they slope in the same manner and degree as the toe does. The quarters do not run in straight lines from before backward, but by their prominence describe gentle curves, the outer making a wider sweep than the inner. This gives the hoof altogether a sort of *twisted* appearance, and makes the inner part of the toe look more projecting than the outer: a deviation that seems principally to have originated in the *spread*, and one, methinks, that has had more attention given it than any consequences attachable to it render it deserving of. The quarters range in depth from two to three inches; and measure in thickness from one-fourth to three-eighths of an inch.

THE HEELS are the two protuberant portions of the wall by which it is terminated posteriorly. They are the shallowest and thinnest, and *in situ* only flexible parts of the wall. Though their surfaces recede from the perpendicular, they maintain the same slope as the toe and quarters. At their angles of inflection, from which are continued the bars, they form (in conjunction with the heels of the sole) pouches or sockets into which are received the heels of the sensitive foot. In depth they range from one and a-half to two inches. In substance they do not exceed a quarter of an inch, the outer heel being rather thicker than the inner.

THE SUPERIOR or CORONARY BORDER, is the circular, attenuated, concavo-convex part entering into the composition of the coronet. Its extent is marked exteriorly by the whitish aspect it exhibits, and also by some partial separation

and eversion of the outer flakes of horn around its junction with the wall below. Externally, it assumes the same character as the wall below it; but its internal surface is altogether different. Instead of possessing laminæ, the surface is smooth and uniformly excavated, being moulded to the form of the sensitive coronet, and every where presenting numerous pores for the purpose of receiving the secreting *villi*. Superiorly, the coronary border presents two edges, having a groove between them for the reception of the terminating border of the cutis. It is this groove that marks, superiorly, the separation of the coronary border into two parts: the internal edge belonging to the inner part, which is the beginning of the wall itself; the external edge to the white band by which the other is embraced, and to which Mr. Clark has in particular drawn our attention, under the appellation of

Coronary Frog-band.—It covers the proper or veritable coronary border of the hoof; having, through its fibres, which are very fine, a sort of dove-tailed connexion with it. As it recedes backward, it grows broader to that degree, that its breadth at length becomes doubled; being about half an inch broad in front, and one inch behind. It is thickest around its middle parts; its inferior edge, like the superior, becoming attenuated, until it grows so fine as to end in imperceptible union with the substance of the wall, giving it its beautifully polished surface: from the heat, however, to which the hoof is artificially exposed, the thin part below the coronet often grows arid, splits from the crust, and becomes everted; turning at the same time, in consequence of dryness, of a whitish complexion. Posteriorly, we find it continued round the heels of the wall and frog, and from thence across the back of the cleft, forming altogether a complete circle, and every where shewing itself to be the *medium of connexion* between the skin and the hoof. It has been already stated that the cutis terminates in a circular border, let into a groove around the summit of the wall: the cuticle, however, does not end here—it is continued down; in fact, we trace it into the horny band we have been describing, the one being continuous in substance with the other. Indeed, the only detectible differences in them are, that one is thicker than the other, and grows hard, and dry, and white, from the effects of heat upon it from without, and the want of moisture from within. This cuticular origin and assimilation may be demonstrated in the putrefied foot; or, better still, in the foot of the fœtus. The band is broader at the heels than elsewhere, in consequence of the greater breadth of exposed cutis at those parts. In its texture it is fibrous, and its fibres pursue the same direction as those of the wall, from which they differ only in being of a finer texture. Mr. Bracy Clark appears to enter-

tain some singular notions in regard to the structure, but more particularly the *uses* of this part; which in the respect I bear for their author, I shall consider when the time may arrive for me to treat of the physiology of the foot.

THE INFERIOR or SOLAR BORDER offers but little worthy of observation. It constitutes the ground or wearing surface of the wall, and is the part to which we nail the shoe. It grows thicker and more exuberant around the toe than in other places, and from its projecting beyond the sole, presents a convenient and suitable hold for the nails of the shoe. Around the anterior and lateral parts it embraces the sole; behind it joins the bars, which two points of union form two principal bearing places for the shoe. The inferior border possesses a larger circumference than the superior, in consequence of the oblique detruncation of the hoof.

This is a part that requires paring down every time the horse is shod. Such is its exuberating nature, that (like the human nail), were it not continually kept worn down, or broken or cut off, it would elongate very considerably, and then gradually turn up, exhibiting forms not only of the most unsightly but even grotesque description, and proving incommodious to a degree to be almost entirely destructive of progression.

THE LAMINÆ (better named *lamellæ*) consist of numerous narrow thin plates or processes, arranged with the nicest order and mathematical precision upon the internal surface of the wall. They extend, in uniform parallels, in a perpendicular direction from the lower edge of the superior border down to the line of junction of the wall with the sole; and are so thickly set at their origin, that no part of the superficies remains unoccupied by them. They are likewise continued upon the surfaces of the *bars*. In the recent subject they are found soft, yielding, and elastic; but from exposure they become dry and rigid.

Every lamella exhibits two *edges* and two *surfaces*. By one edge it grows to the wall; the other, which is somewhat attenuated, hangs loose and floating within the cavity of the hoof. The surfaces, which are two lateral, are smooth, and, considering the magnitude of the lamella itself, of enormous extent; so much so that it might be said almost to be constituted entirely of superficies. And this leads us to the contemplation of part of the great and magnificent design Nature evidently had in view in their formation, viz., the production of ample surface within a small space, an end that has been obtained through the means of multiplication. Mr. Bracy Clark procured from the late Thos. Evans, LL.D., mathematical teacher of Christ's Hospital, a calculation of what their united superficies amounted to; and it

appeared to afford an increase of actual surface more than the simple internal area of the hoof would give of about twelve times, or about 212 square inches, or nearly one square foot and a half.

The lamellæ exhibit no differences but in their dimensions. In length they correspond to the respective depths of the wall; being longest, and likewise broadest, around the toe, and gradually decreasing towards the hinder parts.

In composition, they are horny. Viewed through a microscope, Mr. Clark discovered in their substance two planes of fibres, "the one running in parallel lines to the axis of the hoof, the other obliquely intersecting these." When stretched, they exhibit signs of elasticity; but this appears greater in the transverse than in the perpendicular direction.

By means of its lamellæ, the wall presents a superficies of extraordinary amplitude for the attachment of the coffin bone. A structure consisting of similarly formed lamellæ envelops the bone, and these are dovetailed in such a manner with the horny lamellæ, as to complete a union which for concentrated strength, combining elasticity, may vie with any piece of animal mechanism at present known to us.

THE BARS are processes of the wall, inflected from its heels obliquely across the bottom of the foot. For a long time, by farriers, they were confounded with the substance of the sole, an error that owed its origin and perpetuation to the malepractice they exercised in paring the foot—in cutting both bars and sole down, without any distinction, to a common level. In the natural healthy foot the bars appear, externally, as elongated sharpened prominences, extending from the bases of the heels into the centre of the foot, between the sole and the frog: posteriorly, they are continuous in substance with the wall, with which they form acute angles; anteriorly, they stretch as far as the point of the frog, constituting two *inner* walls or lateral fences between that body and the sole. Sainbel conceives, from their position, that they offer resistance to the contraction of the heels. Their internal surfaces exhibit rows of lamellæ, continued from those lining the wall, but which are here *short*, and in their direction *transverse*, two circumstances owing to the narrowness and inflection of the bar: they gradually grow shorter, and less distinctly marked, until we at length lose all vestige of any more of them. While the prominence of the bars is such as to give them a secondary bearing upon the ground, their sharpened forms will sink them more or less deeply into every impressible surface.

The Sole.

The sole is the arched plate entering into the formation (as its name implies) of the bottom of the hoof: or, to adopt Sainbel's definition, "it is that part which covers the whole inferior surface of the foot, excepting the frog." It is a very just practical observation of Mr. Coleman's, that although a knowledge of every part of the foot is indispensably necessary to render us scientific overseers of the farrier's art, no individual part requires such undivided attention, as regards shoeing, as the *sole*, since the success of this mechanical operation mainly depends on the paring and defence of this arched horny plate.

Situation and Connexion.—It fills up the interspaces between the outer and inner walls (or bars) of the crust. I differ in opinion from those who describe it to surround the toe of the frog. I hold its circumferent support and connexion to be entirely the wall of the hoof, to which it is firmly cemented by an interstitial horny matter, filling the crevices between the laminæ.

Figure.—The circumferent outline of the sole measures about two-thirds of a circle, the remaining third being omitted to form a triangular-shaped *hiatus* or opening for the reception of the frog and bars. This cleft, or notched circle, however, is by no means true, or even invariably the same, in its dimensions. Generally, the longitudinal exceeds the transverse diameter. Its greatest diameter is shown by a line extended from either heel across its middle to the opposite point of the toe.

Arch.—Commonly, the sole presents an arch of more or less concavity inferiorly, and convexity superiorly. But it is not a regular or uniform arch, being one that rather waves or undulates, so as to bear a comparison, made of it by Mr. Clark, "to the mouth of a bell extremely extended or flattened." Like that of the bell, the arch is highest in the middle, from which it slopes laterally down to a flat, subsequently to rise again around its border, in order to present a dilated surface for attachment towards the wall. There is, however, vast variety in the degree of arc of the sole: in some feet it is of surprising depth; in others, the arch is converted into a flattened surface, and yet both seem to perform equally well. In the hind feet the sole is generally more arched than in the fore, and approaches in figure nearer to the oval than the circle.

Division.—In the sole we distinguish an *anterior part* or *toe;* a *middle* or *central part;* two *points* or *heels;* and two *surfaces.* These divisions are not very well defined: but they prove serviceable in aid of our descriptions. The toe of the sole is the

part encircled by the toe of the wall, against which it abuts, and to which it is intimately united by horny matter, the two together forming a stout bulwark of defence to those parts of the internal foot included between them. The points or heels are the two posterior salient angles received into the angular intervals between the outer and inner walls or bars. Although, naturally, the least exposed, these are the parts most subject to injury or pressure from the shoe, being the seat of that disease mistakenly called *corn*. The middle or centre of the sole is the portion more immediately surrounding the fore parts of the frog, and would (were the sole a regular arch) be the most elevated part; but, in general, we find the sole flattened hereabouts; the highest parts of the arch being the angles alongside of the bars; the lowermost, those around the toes.

Surfaces.—Of the surfaces, the superior (as was mentioned before) is unevenly convex; the inferior, correspondently concave. The former is every where pitted, particularly about the heels, with numerous circular pores, running in an oblique direction, the marks of which remain evident upon the inferior surface likewise. These pores are the impressions made in the soft horn by the *villi* of the sensitive sole, from whose orifices the horny matter is produced. They also form the bond of union between the horny and the sensitive soles, which is of a nature so strong and resisting, that it requires the whole strength of a man's arm to effect their separation—an operation of a cruel description that was wont to be practised in times past, under the fallacious notion that "drawing the sole" was extirpating the malady.

Thickness.—The natural thickness of the sole may be estimated at about one-sixth of an inch. There will be found, however, variations from this standard in different horses; and it will also very much depend on the part selected for measurement. The portion of the sole most elevated from the ground—that which forms a union with the bars—is nearly double the thickness of the central or circumferent parts; and next to this, in substance, comes the heel. I do not find that the sole "grows thinner from the circumference to the centre," as has been stated by an author of celebrity.

The Frog.

The frog is the prominent, triangular, spongy body, occupying the chasm left by the inflection of the bars.

Situation and Connexion.—The frog is fitted into the interval between the bars; the three, altogether, filling up the vacuity in the sole, and thereby completing the circle, and establishing the solidungulous character of the foot. The frog extends for-

ward, towards the toe, about two-thirds of the longitudinal diameter of the ground-surface of the hoof, terminating a little beyond the central point (or what would be the central point) of the sole—or rather shooting directly through it, so as to annihilate the spot. Posteriorly, it is embraced by the heels of the wall; laterally, it possesses firm and solid junctions with the bars, and through their medium with the sole: and these unions are effected not by simple apposition and cohesion of surface, but by a *lamellated structure*, apparent on the sides both of the frog and bars, by which the parts are reciprocally dovetailed into each other. Lamellæ are discoverable upon its sides, even all round the toe of the frog; and this is a circumstance that confirms me in my belief that the bars reach thus far.

Figure.—The frog may be called pyramidal, or cuneiform, or triangular in figure; its outline forming the geometrical figure denominated an isosecles triangle. I know of no comparison so familiarly apt as that of resembling it to a ploughshare: not only do they both correspond, as near as such comparisons can be expected to do, in outline and make, but they likewise exhibit a singular coincidence in function; the frog, like the ploughshare, being intended by its point to plough or divide the surface of the earth, and in that manner serve as a stay or stop to the foot.

Division.—We distinguish in the frog two *surfaces*, an *inferior* and a *superior;* two *sides;* a *point* or *toe;* and two *bulbs*, or *heels*.

SURFACES.—Both surfaces of the frog manifest striking irregularities, and these are respectively reversed, making one surface the exact counterpart of the other. In other respects, the only difference they exhibit is, that the superior exceeds the inferior both in length and breadth.

The Inferior Surface presents to our view a remarkable cavity, broad, deep, and triangular in its shape, bounded on the sides by two sloping prominences, which divaricate from the convexity forming the toe of the frog, and terminate, after a short divergent course, at the heels. This cavity or hollow is denominated

The Cleft of the Frog, and with seeming reference to the relationship existing, through its presence, between the horse's foot and the cloven one of the ox, deer, sheep, &c. In consequence of its sides sloping inward, the cleft at bottom gapes wide open; but along the top is roofed by a simple linear mark running from before backward. The horn is kept continually soft and pliant within the cleft by a peculiar secretion from the sensitive parts its covers, the odour of which is notorious.

The solid wedge-like portion of horn in front of the cleft, extending from it to the point of the toe, has been observed by Mr. Clark to exhibit, in the natural foot at its full growth, "a considerable bulbous enlargement," which, by way of distinction, he calls the *cushion of the frog*. On making a perpendicular section of the foot, Mr. C. finds this part is situated "nearly opposite or under the navicular bone." It does not appear (according to this author) that this "rotundity, or swell of the frog," is ever reproduced, after it has once been annihilated by the knife of the smith.

The superior Surface of the Frog, every where continuous, uniform, and porous, being the counterpart in form of the inferior, presents us with nothing but reverses: where the one is hollow or depressed the other rises into swells and eminences, and *vice versâ*. This accounts for our finding the part opposite to the cleft elevated into a conspicuous eminence, bounded on its sides by two deep channels, and a hollow of broader but shallower dimensions in the front. To this central conical elevation Mr. Clark has given the name of *frog-stay*, from some novel notions he entertains of its physiology. Such a bold promontory of horn rising in the middle of broad and deep channels is well calculated to form that dovetailed sort of connexion with the sensitive foot, which greatly augments their surfaces of apposition, and establishes their union beyond all risk or possibility of dislocation. It is a part which (as far as my observations on it have extended) grows and becomes developed together with other parts of the foot; and one that is apt to vary in its relative volume in different feet. In front of the frog-stay, the lateral borders, bounding the hollow in the middle, describe a waving line, which, near half-way to the point of the toe, exhibits a dip or depression: this marks the impression of the navicular bone, and is the part immediately opposite to the "cushion of the frog,"—a coincidence important to be borne in mind, as tending to throw some light on the nature of this new-christened structure.

THE SIDES are the parts by which the frog establishes its union with the borders of the triangular vacuity in the hoof into which it is admitted. Along their superior borders they are transversely lamellated, or rather indentated, in order that they may be fitted to the internal surfaces of the bars, which exhibit a similar structure.

The Commissures are the two deep triangular-shaped hollows between the bars and the sides of the frog, it being only the *superior* borders of these parts that are engaged in their union: their broad unattached parts, below, form the boundary walls

of the commissures. Looking into the interior of the hoof, we discover that the commissures, internally, are converted into rounded promontories, similar in appearance and texture to the one in the middle—the frog-stay—on the sides of which they are rising. In the natural state, the commissures must unavoidably get plugged with dirt, or whatever the animal may happen to tread upon; a circumstance from which some far-fetched notions have been extracted concerning their use.

THE TOE, or POINT OF THE FROG, is the anterior, undivided, elongated portion; that which forms the apex of the pyramid or wedge—the acute or extended angle of the triangle: the only part displaying that prominent or rounded form that would warrant us in using the epithet "conical" to the frog. It possesses solidity of substance, firmness of texture, and luxuriance of growth in an eminent degree—a fact well known to the farrier, who, in paring the foot, seldom fails to make more free with this than any other part of the frog.

THE HEELS or *bulbs* of the frog are the posterior protuberant parts embraced by the heels of the wall, and separated from each other by the cleft, forming, together, the base of the wedge or triangle. They present greater depth of substance than the toe, but are of a softer, more spongy texture, and are less resisting and stable in consequence of being deprived of mutual support by the division of the cleft. Anteriorly, the heels unite with the lateral prominences bounding the cleft; inferiorly, they present two surfaces of tread to the ground, evidently designed to take a share in the bearing of the foot; posteriorly and superiorly they exhibit a bulbous fulness, in consequence of receiving at this part a supplementary covering from a production which has been (in the description of the wall) adverted to, under the appellation given it by Mr. Clark, of

Coronary Frog-band.—It was there stated, that the coronary groove (the groove or canal in the coronary border of the cutis) broadened considerably as it descended to and turned round upon the heels; in like manner does the horny band produced by it broaden, and not only grow broader but thicker in substance, and consequently in the same degree augments the substance of the heels, occasioning that swell of them which has suggested the appellation of "bulb." The horny band itself is every where lamellated upon its internal surface; but these broadened parts of it display lamellæ of a much bolder character, and consequently render their union with the heels so much the more intimate and enduring. The inferior edge of the band is denticulated, and the denticulations become so interlaced with the lamellated fibres of the wall, that their union is rendered, in the

ordinary state of the hoof altogether imperceptible. For drawing our attention to this part we are indebted to Mr. Clark; and insomuch as he considers it to be a production of the cutis (not having any connexion with the glandular circle that secretes the wall), and to serve the purpose of "uniting the sensible parts with the insensible," we agree with him. We find something very similar to this growing upon the human nail, issuing from the superior edge of the terminating border of the cutis, and continued from the cuticle, which proceeds for some way upon the nail, uniting it more closely and firmly with the cutis, and protecting the latter from external injury. This production is no more the beginning of the nail itself than is the so-called *frog-band* the commencement of the wall: they are both distinct parts, though but supplementary ones, and seem to be of a nature partaking both of horn and cuticle. It has no more important relation to the frog, in my opinion, than it has to the wall: it serves the same purpose to both,— that of strapping up the heels of the frog and binding them in closer and more intimate connexion with the neighbouring parts. Were I asked what other use it appeared to have, I should say, that it was formed *to cover and protect from injury the new-formed horn* of the hoof, guarding it in its passage downward, until it has acquired substance and hardness sufficient to resist external impressions of itself.

Development of the Hoof.

During the early months of fœtality, no horn or hoof is to be found. The foot is covered with a substance, white, firm, and elastic, resembling cartilage in its appearance, but proving more of the nature of cuticle on examination, which supplies the place of hoof. At the coronet this substance takes its origin from the cutis, being found to be continuous with the cuticle; but that which covers the bottom of the foot is a production from the sensitive sole and frog. Altogether, it possesses the general form and appearance of the hoof, differing however in these particulars—that the substitute for the wall is comparatively thin in its substance; while that which grows from the bottom of the foot is enormously thick, and, instead of being shaped into sole and frog, exuberates to a degree to constitute cub-footedness. About the same period at which the pastern and coffin bones take on ossification, horn makes its appearance underneath this cuticular wall, in the form of plates descending from the coronet, exhibiting with peculiar distinctness the lamellated structure. The horny wall becomes considerably advanced before we perceive any change in the bottom of the foot. At length, horn is detected forming underneath the cuticular substance, which,

increasing in thickness, gradually represents sole and frog. Not, however, in an undeveloped state; for even at birth, these parts are yet concealed by the exuberant cuticular covering, now become loose in its texture, and shaggy and ragged, in consequence of not receiving any further supply from the parts that produced it, and of being near its decadence; for it not long after falls off, disclosing sole and frog, both ready formed.

Structure of the Hoof.

Horn is found to differ in its texture or quality, not only in the many animals in which it is met with, but in different parts, and even in the same part of the body of the same animal. That which composes the hoof of the horse is a remarkable example of this. How different is the horn of the frog from the horn of the wall; and yet neither of them agree in texture with the sole. The horny substance of the wall is resolvable into fibres, bearing a resemblance to thick or coarse hairs, which in the entire hoof are so intimately matted and glued together, as to have the appearance and strength of solidity. By close and accurate inspection these fibres may be seen, descending in parallel lines, taking the obliquity of the wall, from the coronet to the inferior or solar border: they do not run promiscuously, but are arranged in rows, forming sorts of beds or *strata*, lying one upon another—a disposition made manifest in the foot of the fœtus. A clean-cut transverse section of the wall exhibits upon its surface numerous minute, circular, whitish spots, which grow larger and more distinct towards the internal part, and through a glass appear to be hollow or tubular. These spots I take to be produced by section of the horny tubes, apparently containing a whitish matter, a sort of pith, or pulp, or gelatinous instillation which pervades them from their origin from the *villi* of the coronary circle; the same as hairs derive their unctuous matter from the bulbs producing them, and (as this matter does the hair) renders the horny fibre tough and elastic—in fact, embues it with the peculiar attributes so well known to smiths by the appellation of *living horn;* the epithet "living" being here used to denote the obvious differences the hoof of a living animal evinces from one that has been long detached from the body, or that is dead. We are too apt to believe that the various agents known to act upon the dead hoof or horn must take similar effect on the living; and upon this erroneous belief we employ hot and cold water, &c. &c. in treating disease of the feet, forgetting that we have opposed to our remedies, the resisting or self-preserving properties of living horn.

The Sole, as well as the wall, is fibrous in its structure; but its fibres appear to be of a finer quality, and, in course, are very much shorter: they, however, take an oblique direction, from behind forwards, following the same degree of slope as those of the wall. They issue from the *villi* penetrating the superior surface. To the fineness of its fibres, combined with the relative magnitude of the tubular canals, and consequent relative proportions of horny and gelatinous substances, may be ascribed the comparative softness and elasticity of the sole.

The Frog, however, displays these qualities in such a remarkable degree as to appear, in fact, to be composed of quite another kind of horn; though, on examination, we find it to evince the same fibrous structure, the only perceivable differences being the comparative fineness of the fibres and their proportionably greater tubularity: their direction is oblique, correspondent with those of the wall.

Production of the Hoof.

The wall is produced by the *coronary circle*, a sensitive and glandular part we shall have occasion soon to examine. Its *villi*, by some peculiar, mysterious, secretory process convert the blood circulating through them into a soft pulpy gelatinous matter, which by exposure becomes hard horn, descending from the villous point that produced it, in the form of a tubular fibre, down to the sole. The fibres are united together at their very origin, but their tubes or canals diminish the lower they descend; which accounts for the porous or honeycomb-like structure of the interior of the coronary border and the comparative solidity of the parts below. The outer layers or strata of fibres are found to be more compact and of closer texture than the inner; which arises, in part, from the villi producing them being removed to a greater distance, and to the comparative smallness of their canals, and which, consequently, the sooner become obliterated. The use of Mr. Clark's coronary frog-band becomes now more apparent, serving, as it evidently does, to cover and protect these external fibres until they grow sufficiently firm and solid themselves to bear exposure and resist casualities.

The sensitive laminæ make no addition to the substance or thickness of the wall: they simply produce the horny lamellæ arranged along its interior; as one proof of which, the wall measures as much in thickness at the place where it quits the coronet as it does at any point lower down. Other demonstrations of this fact come every day before such practitioners as have to treat canker, quittor, sandcrack, and other diseases of the feet.

THE HORNY SOLE is a production from the villi of the sensitive sole; after the same process as that by which THE HORNY FROG is secreted from the villi of the sensitive frog.

In a state of health of the foot, the secretion of horn is unceasingly going on. Disease or injury of the glandular parts may diminish, or altogether suspend the process; disease, under certain other forms, is said also to have the effect of increasing it; but whether we have any artificial means of effecting this, seems questionable. The wall grows from above downwards. If a mark is made in any part of the wall, it will remain until it grows out, or becomes cut off below, at the inferior border; and by observations made on the gradual descent and disappearance of these marks, calculations may be formed of the period of time required for the renewal or restoration of the wall.

Properties of Horn.

Horn is a tough, flexible, elastic substance, consisting of tubular fibres, more or less intimately connected together, taking the direction from the surface of the body on which it grows. Its property of toughness or resistance much depends on its condition in regard to moisture; for if it is exposed to a degree of heat sufficient to abstract much of its natural juice or imbibed moisture, it loses its flexibility and toughness, and becomes brittle. On the other hand, saturated with moisture, it is converted into a soft and highly flexible substance, but at the same time becomes weak and unresisting. This known effect aids us to account for the flat-footedness of horses reared in low, fenny, or marshy situations; the hoof being constantly in a state of saturation with moisture, the wall and sole yield to the superincumbent burthen of the body, and the latter grows flat (instead of remaining concave or arched), and even in some instances bulges. If oily or unctuous applications have any effect in softening the hoof, they appear to do so by filling the crevices and interstices between the fibres on the surface, and in this manner checking or suppressing evaporation. Horn takes a high and beautiful polish. Although much inferior in transparency to tortoise-shell, it may be worked up to bear so near a resemblance to it as to be often, in manufactures, substituted for it, as in combs, &c. The hoof admits of an elegant polish; and in that altered and improved state has been manufactured into articles no less useful than valuable and ornamental: even the hoofs of the living animal may, by being kept clean, and when dry rubbed with linseed oil, be numbered among the beauties or ornaments Nature has bestowed upon quadrupeds.

By chemical analysis horn has been found to consist of membranous substance, having the properties of coagulated albumen, and of some gelatine. The horns of some animals, the deer species, from containing bone, become exceptions to this. Mr. Hatchett burnt five hundred grains of ox's horn, and the residuum proved only one and a half grain, not half of which was phosphate of lime.

Shavings of hoof thrown into nitric acid become soft, and speedily melt into a yellow mass, which in about eight hours disappear in complete solution.

The same thrown into sulphuric acid, turn black, in becoming soft, and require thrice the time for their solution. Muriatic acid also turns horn black, and corrodes it, but has so little effect towards its solution, that after ten days a piece of hoof soaked in it was found to have become only more brittle or rotten. Common vinegar will turn horn dark-coloured, but does not appear to have any power in impairing its texture, or, at least, in dissolving it. Liquor potassæ will not only turn it black, but will corrode the horn of the hoof. Ammonia does not change its colour, but slowly destroys its texture, rendering it brittle and rotten.

Communications and Cases.

Ars veterinaria post medicinam secunda est.—Vegetius.

EXTRAVASATION OF BLOOD BETWEEN THE PERITONEAL AND MUSCULAR COATS OF THE JEJUNUM, PRODUCING A PERFECT OBSTRUCTION OF THE PASSAGE.

By Mr. George Watts, *2d Dragoons.*

I feel great pleasure in communicating the following account of an extraordinary case, which came under my notice a few days since. I trust you will give it a place in your truly valuable periodical.

The animal that was attacked with this novel disorder had been presented to the regiment to which I am attached by his Majesty: he was of the true Hanoverian breed; he was the most restless horse I ever saw, so much so, that during our last march from Brighton to Birmingham, he was not known to walk one yard: his bowels, too, were constantly in a state of relaxation.

In the afternoon of the 7th ultimo, I was informed by the farrier-major that King William (the horse was so called by the regiment) was labouring under an attack of gripes. I went to his stable, and found him stretched at full length in his stall; his mouth hot, ears and extremities cold, pulse 38, and but slightly altered, breathing perfectly tranquil. Whilst examining him, he raised himself on his haunches, then got up, walked about, looked anxiously at his flanks, and again lay down; and I was told he had made several ineffectual attempts to stale. Ten pounds of blood were withdrawn, some spirits of turpentine and opium administered, injections, friction to legs, &c. By ten o'clock that night he had voided some urine; the symptoms, however, were unaltered; no fæces were passed save what had been brought off by the injections. I now had the whole surface of the abdomen blistered, and 6 lbs. more blood abstracted, injections continued, frictions, &c. Next morning I found the animal in the same state in which I had left him the previous night, except that he appeared to evince more internal pain. I ascertained that the bladder was nearly empty, nor could I discover any thing in it to account for the continuance of the animal's sufferings: the rectum was empty, and no fæces had been passed through the night. Five drachms of aloes, in solution, were now given, stimulating injections thrown up, frictions continued, and, as he ate nothing, he was drenched with oatmeal gruel: he constantly dipped his nose, during the day, into a bucket of water, then withdrawing it, would curl his upper lip in a very peculiar manner: pulse 40, breathing natural; he loathed all sorts of food. He had several shivering fits towards evening—at night he was no better: next morning he was much weaker; he still continued to move about the box, sometimes at rest, then lying down, and frequently sitting up like a dog. He occasionally passed small quantities of urine, but the aloes had had no effect: pulse 40, rather thready; breathing natural. V. S. six pounds; aloes in solution five drachms, and opium half a drachm; some fresh grass was offered to him, but he refused to eat it. The weakness increased rapidly, the shivering fits were more frequent; his eye betrayed much internal pain; at length it assumed a dim desponding appearance; and he lay down, and died without a struggle.

Such were the more marked symptoms which attended my patient through his illness. I shall now endeavour to describe the post-mortem appearances.

I first opened the cavity of the abdomen: the intestinal canal was less distended than I had anticipated; on drawing out the contents of the abdomen, this was easily accounted for. There

was an obstruction in the jejunum which effectually prevented the passage of the thinnest liquid through that gut; consequently the stomach and duodenum were greatly distended, and the ileum, cœcum, and colon nearly empty. In the centre of the jejunum, and for about eighteen inches in length, the gut was enormously distended, and black in the extreme; it was slightly contracted at either extremity of the diseased portion, but of a healthy colour. I removed the diseased part, and, on cutting through the peritoneal coat, a large quantity of blood escaped, of a dark colour. I then perceived that the cause of all the mischief was an extravasation of blood between the peritoneal and muscular coats of the intestine; and so great was the pressure of the coagulated blood against the internal coat of the gut, that I could not force water through the passage. The blood-vessels in the omentum, contiguous to the affected portion of the jejunum, were very much enlarged; the other intestines appeared healthy, aswa s also the kidneys and urinary organs.

ON THE USE OF CANTHARIDES IN GLANDERS.

(A Letter from Mr. Charles C. Brett, *V. S., of Bletchingly, to Mr.* Vines.)

Sir,

I have perused your work on Glanders with considerable pleasure, and have the satisfaction of reporting to you a case I have had in hand, wherein your mode of treatment has been most completely successful.

A coach mare, five years old, with acute glanders, was condemned for the hounds. Her owner (the proprietor of the Godston coach), however, was induced to put her under my care on the 16th of June last, and I discharged her, restored to perfect soundness, on the 30th of July following.

From a few days after the first exhibition of the cantharides, the mare's tone of stomach and spirits gradually began to improve; she progressively gained flesh, and the ulcers on both sides the septum began to die away, and the tumefied glands to subside. I fed her, as you direct, on the most nutritious diet, and in the most bountiful profusion, but her appetite kept pace with the supply of food. I placed her at large in the bay of a barn, where she had a plentiful admission of fine fresh air, and administered the cantharides daily *(secundum artem)*, in doses of five and six grains.

I conceive, Sir, you have conferred on us a great benefit by the publication of your opinion on this dire disease, and think a case in point, like this, which bears favourable testimony to your mode of treatment, ought to be brought before the eye of the profession.

I am, &c.

CHARLES C. BRETT, *V. S.*

EXTRACTS FROM MY CASE BOOK.

By Mr. W. SIMPSON, *V.S., Southampton.*

No. I.

INFLAMMATION OF THE LUNGS.

ON Saturday, May 12th, about two P.M., a bay mare, eight years old, belonging to a gentleman in this town, was attacked with symptoms of pneumonia. She had been taken to the forge to be shod about eleven o'clock, where she remained an hour or more, and returned home gay and lively: about one o'clock her feed was offered to her, and she commenced devouring it with avidity; but before she had half finished her meal, her appetite failed, she became dull and heavy—and upon my arrival at the stable (in less than half an hour from the time of her first manifesting symptoms of indisposition), I found her trembling excessively, and evincing all the usual symptoms of inflamed lungs, as staring coat, laborious breathing, cold extremities: pulse forty-eight, and oppressed, &c. I immediately opened the jugular vein, from which flowed a full stream of blood, until I had obtained about thirteeen pounds, when the mare was evidently affected by the depletion: inserted a rowel in the brisket.—℞ Pulv. digitalis ℈ij, ant. tart. ʒj, potassæ nit. ℥ss, solve in aquâ Oj. Ordered the legs to be hand-rubbed and bandaged, body to be clothed warmly, light diet, &c.

At seven P.M., I again visited my patient, and found her greatly improved; breathing less laborious, legs warm, but ears cold; Schneiderian membrane healthy hue, pulse forty-six, more lively, but no appetite.—℞ Pulv. digitalis ℈ij, ant. tart. ʒj, pot. nit. ℥ss, aloes Cap. ʒj. Ordered cold mash to be put before her; no corn or hay.

May 13th, seven A.M.—The mare had appeared still improving until about half an hour ago, when great dulness supervened: I found her shivering very much, legs and ears very cold, breathing quick and heavy, countenance exceedingly anxious, head ex-

tended, mouth hot, Schneiderian membrane injected; pulse fifty-two, and oppressed; bowels costive, rowel discharging a little. I immediately had recourse again to the lancet, and took away about nine pounds of blood, when the pulse faltered. Bolus ut ante, changed and dressed the rowel, applied lin. ammoniæ to the legs, and rebandaged them. After the hurry of this treatment the pulse rose to seventy, and the mare was evidently affected by the depletive treatment.

Two P.M.—No improvement—extremities cold—breathing perhaps not quite so laborious. Pulse very irregular, varying from 70 to 85. The mare had not been seen to evacuate her bladder. Ordered legs to be well rubbed with the stimulating liniment.

Seven P.M.—Legs considerably warmer—ears cold—breathing more settled—countenance expressive of great anxiety—bowels still costive. Pulse very bewildering, varying from 70 to 90; sometimes full, at other times scarcely perceptible, but no tendency to a regular intermittence. ℞. Pulv. digitalis ℈ij, ant. tart. ʒij, pot. nit. ʒvi, aloes, ʒj, solve. Linim. stimulans to be applied to the legs. It was my wish now to blister the sides; but, as the owner had an objection to it if it could possibly be avoided, the operation was deferred.

May 14, Seven A.M.—No better—legs cold, which may be accounted for from careless bandaging—breathing difficult—fæces pultaceous. Pulse extremely weak, and 97. I noticed some difficulty in staling, but upon inquiry I learned that this had existed for two years, therefore I paid no attention to this symptom as bearing materially upon the case. Bolus ut ante, omitting aloes ʒj; legs to be again stimulated and well bandaged; changed the rowel, &c.

Three P.M.—The legs are now quite warm, but the ears cold—countenance extremely anxious and dull—not the least inclination for food. Pulse 109, and scarcely perceptible at the submaxillary artery: altogether the mare is worse, and I begin to feel very doubtful as to the result. A strong blister was applied to both sides of the chest.

Seven P.M.—Still no better—the same heavy breathing, the same annoying, quick, *weak* pulse, now 115; the legs, however, are perfectly warm, as is also the surface of the body. The mare has not yet tasted any thing since the commencement of her illness. In consequence of some apparent strangury, I was induced to remove the blisters; yet, although they had been on the chest four hours, not the least degree of irritation was produced. Repeat the sedative medicine. I do not feel warranted in bleeding, in consequence of the exceedingly weak pulse.

May 15, seven A.M.—Not the least improvement. The dif-

ficulty of staling is stated to have diminished. Pulse extremely quick and very weak, great dullness and anxiety of countenance, bowels rather confined. As the digitalis has not had the slightest apparent effect upon the pulse, I now determined to try the white hellebore. ℞. Pulv. veratri ℈ij, ant. tart. ʒiss, sem. lini pulv. et syr. q. s. Remove the fæces, and administer an enema; stimulate the legs, &c.

Two P.M.—No change. Bol. ut supra.

Eight P.M.—Rather worse upon the whole. I had hitherto been deterred from further venesection, in consequence of the exceedingly weak pulse, and I did not altogether see that it was imperatively called for, as the skin and legs were easily kept at a moderate temperature; but as I now saw no reasonable hope of the recovery of my patient, I decided upon using the lancet once more, thinking, but not expecting, that I might draw a prize. I therefore opened the jugular, but could not obtain a pound of blood; the little that did flow was nearly black, and as thick as treacle. During the operation the mare staggered about the stall, and appeared almost unable to support herself. Repeat the hellebore, administer enema.

May 16, seven A.M.—No visible alteration in any particular. Bol. ut ante.

Two P.M.—Still no change, except that she appears rather uneasy, and has lain down two or three times, for a few seconds each time. Fearing this uneasiness arose from the extension of the inflammation to the intestines, I did not hesitate to bleed again instantly; and, to my astonishment, the blood flowed in a free stream, until I had obtained about six pounds, when the mare almost sunk from debility. Bolus ut ante.

Eight P.M.—Uneasiness not the least increased, but, if any thing, rather diminished; in other respects, I do not perceive any alteration in the symptoms. Not the slightest effect appears to have been produced upon the pulse; it is still about 120, and scarcely perceptible. Fresh grass was placed before her, but she would not touch it. In consequence of the possible appearance of enteritis, I did not venture to proceed further with the hellebore, but merely administered ant. tart. and potassæ nitr.

May 17—My patient is this morning altogether worse, and I do not expect she can survive over the day. Evident symptoms of inflamed bowels now shew themselves: she is in great pain, constantly looking at her flanks, and stamping with her hind feet. The pulse at the jaw, can only be distinguished by the greatest attention and silence. Administer a mucilaginous opiate enema, and support her failing strength by gruel, given with the stomach pump.

Two P.M.—The symptoms of enteritis have increased consi-

derably; she is continually lying down and getting up, looking at her flanks, and groaning with agony; the fæces are soft, and a rumbling noise may be heard in the intestines. These symptoms increased in urgency until about five P.M., when she died in dreadful suffering.

Inspectio Cadaveris.

The left lung was highly inflamed, and the parenchymatous portion almost black, in consequence of the congestion which had taken place; the pleura, also, was much inflamed and thickened, and in the cavity about six quarts of serous fluid had been poured out. The right lung was not so much diseased as the left; but the inflammation was evidently making great advances. The pericardium partook of the inflammatory appearances. The intestines, but chiefly the cœcum and colon, were in a high state of inflammation. No other peculiar appearance.

A consideration of this case will naturally elicit a remark or two. In the first place, I may by some be blamed for not pursuing the depletive treatment; but, in my own mind, I am convinced that if I had done so, I should have acted in direct opposition to the course pointed out by the peculiar and annoying pulse, and the great degree of debility under which the patient laboured from the very commencement of the disease. From some experience in the use of digitalis, I have been in the habit of placing so much confidence in it, that I have almost fancied that in some cases the pulse, to a certain extent, was under the controul of the practitioner; but here the drug never had the least power over the action of the heart, for I never once detected any tendency to intermit. The white hellebore, which has been justly extolled, equally failed; but the trial of its powers was not so extended as that of the digitalis, in consequence of the supervention of symptoms of inflamed bowels. With respect to the enteritis, which was the immediate cause of death, I am at a loss to account for the cause. Had I been treating the case with "*small doses of aloes,*" there would have been no mystery whatever; but when the only aperient medicine administered was two drachms of aloes, at two separate times, and that, too, at the very commencement of the disease, I certainly cannot attribute it to that cause. Neither can the hellebore be blamed; for no more than three doses of ℈j each were given before it was suspended. But whatever was the cause, it is an additional proof to me of the great sympathy existing between the lungs and the intestines; and a memento directing me to be very wary how I administer any thing in the shape of a purgative in cases of pneumonia. If enteritis had not supervened, such was the state of the lungs, that the mare could not have survived long.

Southampton, May 22, 1832.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XII.

Ozena in the Horse—Worms in the Nostril of the Horse—Ozena and Coryza in Cattle and Sheep.

Ozena is ulceration of the Schneiderian membrane, not always, or often, visible, but recognized by the discharge of muco-purulent matter, and from the peculiar fœtor from which the disease derives its name. It resembles glanders in being confined in most instances to one nostril, and the submaxillary gland on the same side being enlarged; but differs from it, in the gland not being adherent, and the discharge from its earliest stage being purulent and stinking.

How distinguished from other Diseases.—There is sometimes a fœtid discharge from the nostril in consequence of inflammation of the lungs, or produced by some of the sequelæ of pneumonia. When, after rapid congestion, there has been a breaking down of the substance of the lungs, and mortification has seemed to have commenced during the life of the animal, and also when vomicæ have burst, there has been a considerable discharge of purulent matter, distinguished, however, from ozena by its usually flowing irregularly, and being coughed up in great quantities, and more decidedly purulent, and the gland or glands seldom affected. The discharge from ozena is constant, *muco*-purulent, and attended by enlargement of the glands. It is of immense consequence that we should be enabled to distinguish the one from the other; for while ozena may sometimes, at least, be manageable, the other is the invariable precursor of death.

Cause.—The cause of ozena cannot always be discovered. Chronic inflammation of the membrane may assume another and a malignant character. In severe catarrh the membrane may become abraded, and the abrasions may degenerate into foul and fœtid ulcers. It is not an unfrequent consequence of epidemic catarrh. It has been produced by caustic applications to the lining membrane of the nose. It has followed hæmorrhage, spontaneous, or as the consequence of injury. I had a horse, not many months ago, sadly ill with epidemic catarrh; the soreness of his throat almost precluded the possibility of balling, and in the administration of a drench, he struggled and snorted, and began to bleed profusely from the nose, and, three days afterwards, the smell from that nostril was in the highest degree offensive.

In some cases, and those as obstinate as any, I have not been able to trace any probable cause, and the health of the animal has not appeared to be in the slightest degree affected.

The membrane of the nose is highly sensitive and irritable, and an ulcer, in whatever way formed on it, does not readily heal. It runs on to gangrene; it destroys not only the membrane, but the bone beneath, and the cartilaginous septum does not escape. This is rarely the case in glanders: the ravages of the chancrous ulcers are usually confined to the membrane. I have seen caries of the greater part of the superior turbinated bone when there was no reason to suspect glanders. The ulceration proceeds to a certain point—its progress is then arrested, usually by nature alone—the discharge gradually lessens—it loses its offensive character, and at length ceases. It is a most annoying disease, for the whole stable is tainted with the smell; and although the discharge may almost cease to appear, the stench will remain week after week, in spite of all our efforts.

Treatment; External Applications.—Well, gentlemen, we must do something. Local applications; are they available? I fear not. There are two sufficient reasons against their use. We seldom know the place of the ulceration, and if we did, we probably could not get at it. You will recollect what I have said about this when treating of glanders. Some have recommended setons. Where are they to be applied? If the seat of ulceration is unknown, the seton will only give useless pain. The trephine;—where again shall we apply it? Some post-mortem examinations have shewn that the frontal sinuses were the seat of disease. If we could be sure of that in every case, we might easily get at them. Yet what injection should we use? An emollient one would be thrown away. A stimulating injection might convert ozena into glanders. Other examinations, however, have shewn that the superior portion of the central meatus was diseased. What instrument can be contrived to reach that?

Internal Medicines.—They are almost thrown away. I know nothing of *antiseptics* in the horse or cattle; and as for *tonics*, they have all been tried over and over again, sometimes without the slightest benefit, and always with very doubtful or limited effect.

Fomentations.—Yet we may do something. We may do something, perhaps, under the form of a local application. The discarded nose-bag (undervalued at least by too many practitioners) will afford the means of employing an emollient fomentation. The steam from a bran-mash, scalding hot, will probably reach every part of the nasal cavity, and so afford some chance

of being beneficially applied to the ulcer. It will, at least, thoroughly cleanse the part. By means of the nose-bag and the warm mash the chloride of lime may be introduced into the cavity, not only combining with the extricated gases, and removing the fœtor, but arresting the tendency to decomposition.

Then there is a digestive—a gentle stimulus to abraded and ulcerated surfaces, rousing them to healthy action, and without too much irritating them—turpentine. We may apply this in the form of vapour, and in the best of all ways, by using the fresh yellow deal shavings instead of bran. This digestive may be brought into contact with every part of the Schneiderian membrane, and has been serviceable.

The ulcer, however, may not be in the cavity of the nose, or if it be there, it may bid defiance to a stimulus so gentle as this, and a more powerful one we should hardly dare to use. Then we have another resource, and one that bids fairer to be successful than any other with which we are acquainted. The spring grass;—it is the finest alterative, depurative, and restorative in our whole materia medica; and if a salt-marsh should be at hand, we have still better hopes. The horse to which I just now referred was turned into a salt-marsh for five or six months; he came up with only a faint smell remaining, and that is gradually disappearing: but then I turned out another horse in the preceding spring, and as nearly as possible in the same state, and he became glandered, and died.

After all, our chief dependence must be on a power superior to that of medicine, and to which alone the occasional cure of ozena is to be attributed,—the *vis medicatrix naturæ.* "The ulceration proceeds to a certain point—its progress is then arrested—the discharge gradually lessens—it loses its offensive character, and at length ceases." We may in a slight degree assist and hasten the process, and that we should endeavour to do.

WORMS.

These parasites have been found in the nasal cavity of the horse, or the sinuses connected with it. A mare had chronic nasal gleet, accompanied by frequent and distressing cough. Bleeding and sedative medicines had been tried in vain. The groom had heard strange stories of worms and the larvæ of certain insects finding their way into the nose and the cells connected with it. I ridiculed the idea; but on the same evening he blew a small quantity of pepper up the nostril of the horse, and in his violent sneezing, two small worms were discharged. I did not see them, and I have only the word of the groom for the fact, who with great triumph told me of the circumstance on the following

morning; but I do know, that from that time the cough abated, and the animal soon got perfectly well.

Bourgelat relates a case in which a horse discharged a worm of the filaria species from his nose. He had been gradually wasting, and he continued to waste, and died. A post-mortem examination did not unfold any evident cause of death, but discovered other worms of the same species in the frontal sinus.

CATTLE—FRACTURE.

Cattle are not so much exposed to fracture of the nasal or superior maxillary bones as the horse is. The blows that are aimed at them, both by man and brute, generally fall comparatively harmless on the broad expanse of the frontals above, which, from the strength of their curiously-constructed base, almost defy injury. The means pursued to reduce fracture would be the same, with the important advantage of not having the fear of glanders before our eyes.

CORYZA IN CATTLE.

Coryza is more frequent in cattle than in the horse, accompanied by the same mucous, purulent, fœtid, excoriating discharge, but not so often running on to catarrh, bronchitis, pneumonia, and phthisis.

Causes.—The prevailing causes are the same—overheated houses, or imprudent exposure to cold; but the membrane of the nose is not so much irritated, or disposed to inflammation, by ammoniacal gas, or other injurious effluvia. A cow-house may be as injudiciously close and heated as a stable, but its atmosphere will be of a very different character: no pungent vapour will there irritate the Schneiderian or conjunctival membranes, because the urine of the ox does not contain the superabundant quantity of ammonia which is found in that of the horse, and held by so loose an affinity. There is, however, one unsuspected but too powerful occasional cause of irritation and inflammation of the Schneiderian membrane in cattle, namely, the dust and gravel of the road. The ox was not designed to be exposed like the horse to this annoyance. He has no false nostril to turn off the current of minute and irritating particles from the more susceptible parts of the nasal cavity. Oxen driven any considerable distance to fair or market in dry and sultry weather, are sure to suffer, and sometimes materially, from coryza. Dairymen, whose cows have to travel half a mile or more morning and evening, along a dusty road, wonder that with all their care the beasts should be so subject to hooze. The cause is too palpable, although little suspected by them.

The symptoms of coryza are the same—snorting, laborious breathing. The discharge the same—aqueous, transparent at first, and gradually becoming opaque, mucous, purulent, and bloody.

Periodical Coryza.—There is a periodical appearance of coryza in the ox not observed in the horse. During the winter season, and probably from our mismanagement—from undue exposure of the animals to cold, or to extremes of heat and cold —there is a considerable nasal gleet; not interfering much with health, but unpleasant to the eye and troublesome to the animal, and which, in despite of all our medical treatment, will remain. Do not let us be too much alarmed, for when the genial warmth of spring returns, it will disappear as suddenly as came its attack. Yet not always; it has continued purulent, green, bloody, for years, and the health has been scarcely affected, because the Schneiderian membrane has not been previously exposed to the same injurious and debilitating influences as in the horse. Therefore it is that the farmer scarcely regards a cough, although a harassing and long-continued one, in his cattle, for in the majority of instances the beast carries its usual flesh, and yields its full quantity of milk; and it is only when the milk fails, and rapid emaciation is perceived, that he begins to look about him.

Caution to the Practitioner.—You, gentlemen, I hope, will not be so apathetic, if you have the power to interfere; for cases will occur, and perhaps too frequently for the full maintenance of your professional reputation, in which, as I have just told you, the inflammation will extend to the fauces, and creep down the trachea, and invade the lungs, and lay the foundation for tubercles, vomicæ, and death.

Treatment.—If you have the opportunity without seeming to look out for, and unnecessarily to make, cases, you will warn the farmer of the imprudence and danger of neglect, where inflammation of any portion of the respiratory passages is evident.

In treating the animal with inflammation of this, the first of the respiratory passages, you will anxiously inquire whether the disease may not have proceeded further. Is there cough, and that plainly giving the animal pain? any increased labour in breathing? diminution of appetite? suspension of rumination? fever? ascertained by the symptoms just enumerated, but more by the pulse. Does that much exceed 40, the natural standard in a healthy middle-sized animal? You will in cattle, as in the horse, best examine the pulse where the submaxillary artery passes over the edge of the lower jaw to be distributed on the face; but you must look for it considerably nearer to the the tuberosity of the lower jaw than you find it in the horse.

The degree of animal temperature will likewise guide you as to the existence and extent of fever. You usually ascertain this in the horse by putting your finger into the mouth of your patient; you must not do so here, at least with a horned animal, lest the farmer should suspect that you knew not how to handle a beast. You would obtain the degree of temperature as accurately as you would in the horse, but the farmer has found out another place where, with greater ease and almost equal accuracy, he obtains it,—at the base of the horn. I shall have to shew you that the bone of the horn is by far the most vascular one in the frame of the ox,—that it is perforated by innumerable blood-vessels, and that the horn, properly speaking, is either a prolongation of the cuticle, or is most intimately united with it, and at its base not thicker than it; and therefore when grasped by the head, giving the temperature of the blood flowing immediately underneath. The farmer knows no other place at which he may ascertain the heat of the blood; and you must humour him by doing that which all who are much used to cattle invariably do.

Proper Medicine, and Dose.—You will be guided by the degree of fever. If little or none is indicated, a warm mash, and a dose or two of cooling medicine, will probably set all right. The medicine will be that which I have recommended for the horse -the digitalis, tartarized antimony, and nitre, in the same proportions, but only in half the quantity. I would lay this down as a rule, that the ox, into whose true digestive stomach your medicine may be introduced at once when given in the form of a drink, requires but half the quantity which you would give to the horse, in whose half vascular, half cuticular stomach it is received. Our continental neighbours, and some English practitioners, erroneously reverse this.

The dose must depend on the degree of fever; but in usual cases, and for a moderate-sized animal, I should consider half a drachm of digitalis, three quarters of a drachm of tartarized antimony, and two drachms of nitre, a medium dose. And, once for all, I would state, that cattle medicines, unless those which are designed to be stomachic, and I do not know that I should often except them, should be given in the form of drink. They then pass at once into the fourth or true stomach, and produce their effect; but a ball, by its weight, breaks through the curiously-constructed œsophagean canal which I shall have to describe to you, and enters the cuticular macerating reservoir, the rumen, where the only effect it can produce will be a mischievous one, for it will give an unpleasant taste to the food, and nauseate the animal, and lead to the cessation of rumination, and

be followed by indigestion, extrication of gas, and tympanitis of the stomach, and thus necessarily aggravate the previous disease.

If the inflammation has spread, and fever exists, it will be prudent to bleed and physic: but the disease has now assumed a new character; it is catarrh, or something worse, and the treatment to be pursued will be considered under the proper heads.

OZENA IN CATTLE.

Of *Ozena* in cattle I have seen but few cases, and they seemed to belong to that periodical coryza—a nasal gleet, with the cure of which nature has a great deal more to do than the veterinary surgeon.

GLANDERS IN CATTLE.

Of *Glanders* in cattle I know nothing; that which approached the nearest to it was a case of chronic coryza, that ultimately yielded to medical treatment. I do not, however, think that this point is yet fairly settled; it is a very important one, and an interesting field for research and experiment lies before you. So far as cattle and sheep are concerned, I stand before you the first public lecturer, South of the Tweed, who has condescended systematically to notice their diseases. There is an honourably splendid exception at Edinburgh; the instructions of Mr. Dick, however, have hitherto been, but I trust will not always be, confined to his class. Sometimes I feel oppressed by a consciousness of the disadvantageous situation in which I am placed. Well, gentlemen, I can only give you the experience of an individual, but I may have the happiness to enlist you in that cause in which I am labouring,—the improvement of this most important and shamefully-neglected branch of our profession, the knowledge and treatment of the diseases of cattle, sheep, and every domesticated animal; and my successor in this—chair I must not call it, although I will venture to predict, that when our undervalued, degraded profession has a little more worked its way, a chair of veterinary medicine will be established here, and will never be removed while the University of London stands on its basis—my successor, I say, in this situation, will have a pleasanter and a more satisfactory task to perform. Gentlemen, this is a subject for your serious investigation.

FARCY IN CATTLE.

We have no case of glanders, according to the hitherto-acknowledged acceptation of the term, but we have cases of that which

bears too strong a resemblance to *farcy*. M. Sorillon, veterinary surgeon at Absac, in the department of the Gironde in France, has placed upon record the most satisfactory account of this disease of doubtful character. In four oxen, each of which had considerable cough, a large corded absorbent could be traced from the inside of the upper part of the fore-arm to the fetlock. *Farcy buttons* were evident, not only to the touch but to the eye, through the whole extent of the corded vessel. Most of them were hard, scirrhous; but others suppurated and ulcerated. It was the first time that he had seen a disease of this kind in the ox, and he was struck with, and alarmed by, its similarity to farcy, and he adopted the measures to which he would have had recourse in a case of farcy. He applied the budding iron; the wounds healed, the cordiness of the absorbent was gradually diminished, and the cough disappeared. Two months afterwards, however, the farcy buttons and the corded absorbent were seen again, and *the cough returned at the same time*. Two were perfectly cured, and of the other two, including the one that experienced a relapse, he could gain no after-intelligence. These cases occurred in the space of about three years, and the disease was not communicated to any of the oxen that fed in the same pasture. These are suspicious cases, but we must suspend our judgment until we have accumulated more facts. If they were cases of farcy, the disease assumed a very mild character, and was unusually manageable. I am far from sure that there might not have been some disease of the foot—foot-rot—although not of a very malignant kind, otherwise M. Sorillon would have noticed it, and connected it with the supposed farcy. Cattle are occasionally subject to ulcers about the joints, and then these little buttons, or buds, are generally seen running along the course of the veins. I have seen them continue in their hard state for several months, when the farmer would not have any thing done to them, and at length they have dispersed; but, at other times, they have burst, and ulcers have been formed exceedingly difficult to heal, and the matter from which has corroded, and ulcerated the neighbouring parts. When there did not appear to be any great swelling of the foot, or any ulceration, I have known the inflammation extend up the leg, and involve the whole of the cellular membrane of that extremity, and even destroy the animal, by the constitutional disturbance which it created. I have now in the house a plain and palpable case of that, in a deer, that died at the gardens of the Zoological Society, from pure irritative fever, occasioned by inflammation of the foot, foot-rot; and the absorbents were here corded, but not buttoned. We shall know more about these things in due time.

CORYZA IN SHEEP.

Coryza is a frequent disease in these animals, and arising usually from the same prevalent cause,—undue exposure to extreme cold in the winter. Matter will be seen running from the nostrils of three-fourths of the sheep in some flocks; it will annoyingly plug up the narrow aperture of the nasal cavity, already filled by the singular developement of the æthmoid and turbinated bones. The animal will be arrested at every second or third bite at the herbage, and will snort violently, or stand with his head protruded, labouring for breath. Some have said that this is contagious: we have no proof that it is so; it spreads through the flock, but all the sheep have been exposed to the same exciting cause.

Periodical.—This will continue during the winter months. The health of the sheep seems to be little or not at all affected; it is a mere local affair; there is not even any enlargement of the submaxillary glands. Then, as in oxen, as soon as the warm breezes of spring are felt, the discharge rapidly diminishes, and, whether we are to attribute it to the genial change of the season, or to the medicinal power of the first flush of grass, in the course of a week or two, not a vestige of disease remains in nine-tenths of the flock.

Fatal to some,—but the tenth part. Why, that which renovates the others produces in this tenth a faint struggle against the foe; and then they become weaker and weaker; the inflammation spreads, and affects other passages: ulcers are in the nose; every sinus is full of pus; the larynx, the trachea, the bronchial tubes, are lined by a kind of false membrane, composed of mingled mucus and pus, and underneath that is a flush of inflammation of the intensest kind, with deep and spreading ulceration; and the animal gets weaker still, and more and more emaciated, until pulmonary consumption is confirmed, and death closes the scene.

Seldom treated by the Veterinarian.—Sheep are, even by intelligent farmers, scarcely deemed worthy of medical notice; and except there is some epidemic or contagious disease, and where, in truth, the skill of the surgeon is of little or no avail, he is rarely consulted about them. On this account it is that the veterinary surgeon has seldom condescended to give to the diseases of sheep a moment's consideration, and thus all parties have suffered. The veterinary surgeon has not had the credit of being competent to this branch of his profession, and the flocks of the farmer have been thinned by many a malady, for which the united labours of veterinarians would long ere this have dis-

covered a preventive or a palliation, if not a cure. It will not be always thus. The proper extent of veterinary science begins now to be appreciated, and *the schools must recognize it, and the veterinarian and the agriculturist will be equally benefitted.*

Proper Treatment.—In some cases I have given with benefit the fever powder already recommended for horses and cattle, and in doses of from ten grains to a scruple of the compound. There have been fewer of the fated lot remaining, and some of them have been redeemed from the destruction that seemed to await them. If we cannot, however, do much as to the medical treatment of this disease, we can do more in the way of prevention. If we cannot hasten the return of spring, we can remove the shiverers to a drier and warmer situation; we can encourage the growth of the thick and almost impervious hedge, or of the tree whose winter foliage will always afford a shelter. Agriculturists begin to be aware of the necessity of some protection for the ewe that has just yeaned, and for the newly-dropped lamb. They have purchased their experience at a dear rate, but they have learned a lesson of wisdom and humanity.

Not Glanders.—The disease that I have been describing is called by some the *glanders* of sheep, but it has no affinity to that malady in the horse. The result of several experiments, so far as they have been carried, is that the sheep is not susceptible of glanders. I should be cautious of trying the experiment with a valuable flock, but I never yet heard of an instance of the disease being communicated by a glandered horse feeding in the same pasture with sheep. The matter of glanders has been thrust up the nostrils of a sheep without bad effect, and the horse has been inoculated, without ill result, with the matter from the nose of a sheep labouring under bad coryza.

Not Irritation from the Larvæ of Flies.—You will be careful, gentlemen, that you do not confound this disease with another discharge, small and limpid, but accompanied by seemingly insupportable annoyance to the animal, who is snorting, and throwing himself about, and galloping in every direction. This occurs in the summer—it attacks only a few of the flock, and it is occasioned by the larvæ of the œstrus ovis crawling up the nostril to reach their destined residence during the first form which they assume.

Of the swine I am not able to speak from experience, and I will not mislead you by hearsay reports from others.

CORYZA IN THE DOG.

We have coryza in the dog sufficiently plain. We see him snorting in a very peculiar way, with his head protruded, for a

minute or two at a time. I say snorting in a peculiar way, for the inspiration is as forcible as the expiration. The air is hurried backward and forward, as if to dislodge something that had lodged on the Schneiderian membrane, and was a source of irritation.

An emetic will usually afford relief. Of the *modus operandi* I am not certain: possibly, in the act of vomiting, some obstruction or deposition of mucus is forced out. In obstinate cases I have given grain doses of the sulphate of copper, made into a ball with linseed meal, with marked advantage.

OZENA IN THE DOG.

We have frequent cases of *ozena* in old dogs. The discharge is abundant and constant, and sometimes fœtid. The Schneiderian membrane, of more than usual sensibility in this animal, is exposed to many a cause of irritation, and debilitated and worn out before its time. Pugs are particularly subject to ozena. I scarcely ever knew a very old pug that had it not to a greater or less degree. The peculiar depression between the nasal and frontal bones in this breed of dogs, while it almost totally obliterates the frontal sinuses, may narrow the air-passage at that spot, and cause greater irritation there from the usual rush of the air, and especially if the membrane became inflamed or any foreign body insinuated itself.

I have nothing to recommend you here, but cleanliness. It is, in the majority of cases, a disease of old age, and it must take its course.

WORMS IN THE NOSE OF THE DOG.

I have seen several cases of *worms* in the nose of the dog, and a sad nuisance they have been. There is a worm inhabiting the stomach and duodenum of young dogs, a frequent cause of sickness, and occasionally of spasmodic colic, when they roll themselves into knots (the *ascaris marginata*), and of which I shall endeavour to give some account when treating of the vermes. It seems occasionally to take a dislike to its assigned residence, and it wanders rarely into the larger intestines, but often into the œsophagus. A dog had dreadful cough which could not be subdued by bleeding or physic, or sedative or opiate medicine. He was destroyed, and one of these ascarides was found in the trachea. Others find their way into the nasal cavity, and a dreadful source of irritation they are there. Possibly they are endeavouring to escape, in order to undergo one of the changes of form to which they are destined, or they might have been forced into the nostril in the act of vomiting. I once had

a dog as a patient whose case, I confess, I did not understand; he would sneeze and snort, and rub his head and nose along the carpet, and fight at his nose and the corners of his mouth. I happened to say that the symptoms, in some respects, resembled those of rabies, and yet that I could not satisfy myself that the dog was rabid. The mention of rabies was sufficient, and in spite of my remonstrances the animal was destroyed. Of course, the previous symptoms led me to examine the nasal cavity among other parts, and I found two of these vermin, one concealed in the middle, and the other in the upper meatus, through neither of which could any strong current of air be forced, and from which the ascarides could not be dislodged. There is a similar account in one of the French veterinary periodicals.

I know not what to advise you to do here, or how in fact clearly to ascertain the existence of the evil.

The substance of the thirteenth and fourteenth Lectures, on Nasal Catarrh, or Distemper in Dogs, has been already presented to our readers in the third volume of "THE VETERINARIAN," at page 75.

LECTURE XV.

Nasal Catarrh in the Cat, Rabbit, and Poultry—Strangles.

Distemper in the Cat.—There is another not very interesting or amiable, but very useful animal, which is a frequent victim to nasal catarrh and its sequelæ,—the cat. The disease in the early stage is characterized, as in the dog, by defluxion from the nose and eyes, and frequent sneezing; but other portions of the membrane are sooner involved: cough succeeds; sore throat, inability to swallow, or even to masticate, swelling of the throat and head, drivelling from the mouth, rapid and extreme emaciation. The animal retreats to some corner, and there sits motionless and lost, and dwindles away and dies. If the poor beast is neglected, the disease is more fatal than in the dog, and far more infectious. If a distempered cat is in the house, there is not a dog in it that will escape.

The means of cure are the same, and are more efficacious. One or two emetics will, in the majority of cases, cut the matter short. The same medicines may, if necessary, be afterwards administered, but with a greater proportion of the mechanical vermifuge, for the disease is here invariably connected with the presence of worms.

In Rabbits.—Rabbits are subject to a similar disease, commonly known by the term *sniffles*. It more resembles glanders, inasmuch as it is longer and more decidedly confined to the membrane of the nose. The animal for many a week will exhibit no other indication of disease than a constant *sniffling*, and a

profuse discharge of mucus and muco-purulent matter from the nose. At length other portions of the respiratory membrane, and soon after that the constitution itself, become affected, and a rapid loss of flesh ensues, and the animal pines away and dies tabid.

Like glanders and distemper, this is both generated and communicated. It is the frequent result of exposure to cold. A breeding doe, or a litter of young rabbits placed in a cold and damp situation, rarely cleaned and badly fed, will almost certainly have the sniffles; and if a rabbit labouring under this disease is admitted or suffered to remain among the others, three-fourths of them will be lost. In most of the diseases of rabbits, the abdominal viscera are implicated to a great extent. Here is a specimen of hydatids taken from the mesentery of a rabbit that died *sniffled.*

I have spoken of the sulphate of copper as a tonic, with its chief determination to the membrane of the nose. I have used it with considerable success in this complaint. It was given to some rabbits from the Zoological Farm, and the majority of them recovered. I afterwards sent some to a gentleman, whose stock of rare breeds of rabbits was rapidly diminishing from this pest, and the plague was presently and effectually staid. Emetics produced extreme distress, and the copper was therefore given at once in solution, in doses of from one to two grains morning and night. In this quantity it acted evidently as a tonic: the appetite returned, condition was quickly gained, but the discharge did not entirely cease in less than six or eight weeks.

In Poultry.—The feathered biped is even more subject to nasal catarrh than the quadruped. Many of our domestic poultry, confined in close and dirty places, and ill-fed, have the *roup*, characterized at first by swelling around the eyes, and discharge from the nostrils, and drivelling from the mouth, at first limpid, but soon becoming purulent and fœtid. The crop is particularly hard. This, however, only shews that the digestive organs sympathize with this affection of the respiratory ones, but cannot be considered as a diagnostic symptom of *roup*. This complaint, although generated by bad management, is infectious in the highest degree.

Of the cure I cannot speak with confidence. Common salt is often given with good effect. It usually acts as an emetic. The dose for an ordinary-sized fowl would be half a tea-spoonful of the saturated solution. Next comes cleanliness; the eyes and head generally should be frequently bathed with warm water. Warmth is indispensable—it is the secret of treating almost every morbid affection of the respiratory passages of our domestic

animals, but not warmth in a close and ill-ventilated place. I have found occasional benefit from the pulvis antimonialis in doses of a grain, made into a pill with bread. The country people have a great many nostrums. At the head of them stand garlic and rue, beaten into a mass with butter; and they undoubtedly are serviceable, whatever be the *modus operandi*, whether they are diaphoretics or expectorants, or, rather, mild stimulants suited to a disease so apt to assume the typhoid form. Others give an apparently strange compound—rue and brick-dust, but not so absurd on second consideration as it would appear at first to be. There is the mildly stimulant effect of the rue, and the mechanical agency of the brick-dust, either in assisting the languid trituration of the food, or expelling the worms with which the intestines of these animals are often clogged.

Ducks are very subject to nasal catarrh, and frequently die almost suddenly. In *geese* it is recognized under the name of *gargle*, and is often successfully treated with garlic, beaten into a mass with butter. Even *pigeons* are not exempt from it. Whole dovecots are sometimes depopulated by it. There is the same defluxion from the nose and eyes and mouth, the same disinclination or inability to feed, the moping appearance, and gradual wasting. Garlic and rue are the common specifics here, but always in combination with warmth and cleanliness. When every thing else has failed, it is said that little pills of the cordial horse-ball have roused the system, and enabled the animal to shake off the disease.—Gentlemen, I make no apology for including these animals in our legitimate list of patients. If I understand our duty aright, it extends to every animal that we have domesticated, and that is a part of our property, and on which we have too often entailed disease. At all events, they have life and feeling.

STRANGLES.

I know not where better to treat of a disease, from an attack of which, of greater or less intensity, the horse seldom escapes, —I mean inflammation of the cellular substance immediately beneath the lower jaw, and known by the term strangles. It is peculiar to young horses, and generally attacks them when they are between three and four years old.

Symptoms.—The horse is dull, feverish, off his appetite, does not thrive, his coat stares. Cough comes on—it is treated as common cough, but it gets worse; there are violent, almost suffocating fits of wheezing and coughing—slavering from the mouth—swelling of the tongue—discharge from both nostrils, usually a yellowish colour, and soon of a purulent character, yet

rarely accompanied by any offensive smell. The fever increases —the pulse indicates extreme irritability—the cough becomes more aggravated—the horse heaves violently at the flanks—and this continues three or four days, or perhaps a week; and if the practitioner has neglected to examine the age of the horse, and has not recollected the disease to which he is then so subject, but has treated the case as one of aggravated cough and fever, and has bled copiously, and has been pouring in his sedative medicines, he may linger on another week, and not do well at last.

At length some swelling appears about the throat or head; at first perhaps in the region of the parotids; but at length the enlargement is decidedly in the centre of the channel between the branches of the lower jaw. The disease now assumes its true character, *it is phlegmonous inflammation of the subcutaneous cellular substance between the jaw.* It is called *strangles,* from the violent cough before the appearance of the tumour, and the pressure of the tumour before it suppurates threatening to strangle the horse.

Derivation of Name.—Mr. Castley, in a late number of THE VETERINARIAN, quotes from Gervase Markham, the probable derivation of the name. "It is a great and hard swelling beneath a horse's nether chaps, upon the root of his tongue, and about his throat; which swelling, if not prevented, will stop the horse's windpipe, and so strangle and choke him, and from which effect, and none other, the name of this disease took its derivation." In some parts of Great Britain it is called *strangullion.* The inhabitants of the north of Italy recognize it by the name of *strangolina,* and in the south of France it is termed *étranguillon.* The prevailing symptoms are much the same wherever the disease is known.

Certain Countries exempt.—Strangles is unknown in certain countries. It has not yet found its way to the south of Italy, nor to Spain, and neither to Arabia nor to Africa; and northwards it has not reached to Russia or Norway. We cannot always give the reason of it, but the fact is plain enough, that certain diseases of the human being and the brute are peculiar to certain countries.

Epidemic.—The subject of atmospheric agency is yet involved in a great deal of mystery; but we know, with reference to this disease, even in our own country, that there are certain seasons when a case of strangles rarely occurs, and a few months afterwards there is scarcely an establishment or a farm, without the majority of the young horses exhibiting evident symptoms of this disease.

Whether it is simple epidemic, or both epidemic and contagious, is doubtful.

Contagion.—Some of our best writers speak of the advocates of the contagiousness of strangles in the sarcastic tone of contempt. For my own part I am perfectly assured that it is epidemic; but there are cases which I cannot explain, except on the supposition of its being contagious too: and I could never bring myself to think or to speak contemptuously of the opinion of almost every old writer, and of almost every country practitioner of the present day. Colts at grass have strangles much more mildly than the stabled horse; indeed, the tumour and the discharge are sometimes so small, that they elude observation, if the horse is not taken up and closely examined. When speaking of glanders, I have told you that the careful observer can scarcely confound strangles with glanders. The size and situation of the tumour will be an infallible guide.

Treatment.—I will suppose that you are called to a case of strangles. There is no doubt about the nature of the disease. Then take it as a principle, that this phlegmonous inflammation must run its natural course,—the tumour must break, and its contents must be discharged. There is something lurking in the constitution which is a source of annoyance, and must be got rid of. This tumour is a spontaneous effort of nature, and, once completed, there is seldom need for repetition of it, at least for many years. Some old horses have had strangles a second time; it has been said that others have not had it all, or they have had it so mildly that it could scarcely be distinguished: and, like distemper in the dog, a disposition to be severely affected by it seems to run in the breed. If it is repelled, the horse continues poorly and feverish, and other swellings form about the throat or in other parts, and proceed to suppuration.

Nature of it.—Mr. Castley has published an excellent paper on this disease, and I think that the veterinary profession is much indebted to him for it. He considers that the tumour and abscess of strangles is one of the methods by which nature gets rid of that which annoys and oppresses her. He tells us, that when a farmer sees a young horse looking sickly, and delicate, and thriftless, he says that he is breeding the strangles, and that he will not be better until he has got over that complaint.

This is the case with many eruptive and other diseases of the human being. The constitution struggles for a while to bring forward the disease, and until it is brought forward the patient is not himself. You will find this to be perfectly true with regard to strangles, before you have seen a great deal of practice.

You will find the colt struggling for months together to throw off the incubus by which it is oppressed, and when that is done thriving with a rapidity before unknown.

Cases.—Mr. Castley gives us some cases in illustration of this. A bay gelding, four years old, had cough, but unaccompanied by any swelling of the glands or sore throat. This continued during a whole month, in spite of medical treatment; at length a tumour began to form under the jaw, and a small abscess ensued. Another tumour appeared on the cheek, which was opened; and then there was a collection of matter among the muscles of the fore-arm, and lastly, over the hip-joint. These were properly attended to and healed, and the horse immediately began to improve. This was evidently a case of strangles at the beginning, for it was preceded for more than a month by a troublesome cough, and this disposition to abscesses every where, arose from the slowness with which the natural tumour of strangles proceeded to suppuration, and the imperfect manner in which it did suppurate. He relates another case, in which, after apparently recovering from strangles, a mare of three years old sickened and died, and a large tumour was found in the mesocolon, filled with thin purulent matter. He considered it, and rightly I think, as connected with strangles, or one of its sequelæ.

Mr. Tombs mentions a case of strangles, complicated with large tumours in the abdomen, and particularly with one on the kidney.

I was sorry to read, while preparing myself for this lecture, in our very best veterinary work, "that the common notion, that unless an abscess formed and was evacuated, the animal did not derive that constitutional benefit which nature intended him, is one of those vulgar chimeras, that seems not upon any rational grounds to be deserving of more attention in practice than is requisite to appease those who are determined to follow the humoral or farrier's pathology." I honestly confess that I am one of those who are disposed to adopt this farrier's pathology; for I cannot forget the numerous cases in which I have seen a puny weakly colt speedily strive after strangles attended with proper discharge; and, on the other hand, the circumscribed tumours, more diffused swellings, want of condition, and almost worthlessness, which have followed strangles, either improperly treated, or not brought sufficiently to a head.

Treatment Resumed.—Well, then, our object is to promote speedy and effectual suppuration in the part. This is the grand object, whatever, in other points, may be our theory of the disease. Then, except there is considerable fever, there must not be any

bleeding,—no lessened determination of blood to the tumefied part;—no physic, and, for nearly the same reason;—no cooling embrocation, for until the tumour is ripe we must encourage, and not diminish the local inflammation;—no poultices, for they are comparatively ineffectual through the thick skin of the horse, to say nothing of the difficulty of confining them there, and the coldness of the part, and arrestment of the healthy inflammation when the poultice is displaced, or the part exposed to the cold; —no fomentations, for you cannot rub the part dry after it has been fomented, and the cooling, delaying process of evaporation will commence. If you will use a fomentation perhaps you may as well adopt Mr. Parkinson's, consisting of water in which elder-leaves and white-lily-roots, and groundsell and house-leek have been boiled, and then a quantum suff. of chamberlye and cow-dung added. Since I have got into the habit of giving quotation upon quotation, I will refer you to old Dr. Bracken, whose book is, on the whole, a treasure. He recommends "a poultice of mallows and marsh-mallows, and other such potent applications, which is a most incomparable cataplasm; for when nature is, as it were, desponding, and cannot throw off the load of matter that causes the distemper or swelling, this by its genial warmth comforts the stretched fibrillæ or animal threads that are distended beyond their natural tone, and also greatly contributes to thin the skin by its mollifying and softening qualities." You will not thus play with the case, but go more earnestly to work.

Blistering recommended.—You must stimulate the part, not as Mr. Parkinson again writes, by holding a lighted candle to the part to make it break the sooner; and as another writer recommends, to hold it there until you have fairly burnt into the tumour, but by applying a good sharp blister. You will save many a day, perhaps some weeks of indisposition, and much weakness and emaciation, the necessary consequence of a long struggle between the constitution and the disease. Prompt blistering forms the grand secret of the treatment of strangles.

When you have brought the tumour to a state of suppuration, do not open it too soon lest you should prematurely arrest the process. On the other hand, do not leave the tumour to break, lest you have a ragged ulcer that will not heal. As soon as the swelling is fairly softened, lance it, and lance it freely, or the orifice may close before all the matter is discharged. Nothing should be done to open the tumour before the process of suppuration is matured, except the enormous bulk of the tumour, and its pressing on the trachea, and threatening suffocation. The swelling has, in some cases, so enormously increased, and the

process of suppuration has been so slow, that it has been necessary to resort to tracheotomy in order to save the animal.

Treatment after the opening of the Tumour.—You will now give a slight aperient—probably a drachm of aloes in the common fever ball, for a few successive mornings until the dung is loosened. You will keep the horse on green meat or mashes, frequently foment the wound, or apply a poultice over it to keep up the discharge as long as possible. That beginning to cease, you will inject a little tincture of aloes into the orifice, morning and night, and the wound will heal quite as rapidly as you could wish. The wound being healed, a mild dose of physic will be highly proper; and in order to carry off any humour that may remain, a portion of green meat should be continued during a few weeks, the horse gradually returning to his proper quantity of corn.

In general cases, the restoration to health and strength may be left to the salutary power of nature; but occasionally strangles leaves a considerable degree of weakness. Tonics are then indicated, such as the gentian and the ginger; and, in cases of great debility, the sulphate of iron. I need not tell you that just in proportion to the degree of weakness in which the animal is left will be the danger of attempting too rapidly to restore the power and condition of the horse. Corn must be given very cautiously, and tonics administered with much circumspection---the vegetable tonics first, and afterwards the mineral one. If the weather is tolerably warm, there cannot be better practice than turning out during the day, and taking up at night. The cough of strangles will long remain, after the original exciting cause has been removed, and a little imprudence will make it degenerate into chronic cough, or broken wind, or, perchance, some dangerous inflammatory affection of the chest.

Bastard Strangles.—The disease so termed I am unable fully to describe. It assumes as many forms as the distemper of the dog. It will be recognized by some enlargement between the branches of the jaw, in the same situation as the tumour of strangles, and accompanied by more or less fever, purulent discharge from the nose, and that sometimes profuse; but the swelling does not proceed to suppuration. It teazes for many a week, and then begins to lessen, and at length leaves behind it a very small hard tumour, which is perceptible for months or years, but is not tender, and does not seem in any way to annoy the horse.

All this is evidently an ineffectual attempt of the constitution to bring forward and ripen the tumour of strangles, and the mode of assistance most likely to be successful is the application of local stimuli in the manner that I have described.

Vives.---The term vives is used with much ambiguity by

veterinary writers. It sometimes refers to those little knots or kernels that are left under the jaw when the tumour of strangles has subsided. They are distinguished from glanders, by their being larger than the kernels of that disease, and not adherent to the jaw, but situated towards the middle of the channel. The better way is to let them quite alone. If any thing is applied, it should be a very diluted turpentine tincture of cantharides. A slight irritation of the skin, kept up for some time, may rouse the absorbents to their duty, and cause the little tumours to disappear.

Other writers, by the term *vives*, understand inflammation and enlargement of the parotid gland; but this is a salivary gland, and belongs to the system of digestion.

STRANGLES IN THE OX.

This disease is also recognized by the term *strangullion* in in many districts. It is accompanied by fever, loss of appetité, impairment of strength, cough, and, after a while, swelling about the throat, seldom a very prominent one, but of a more diffuse kind, very hard and tender. In two or three days it points, but rather obscurely, and may then be opened; it rarely breaks, for the skin of the ox is thick and tough; but the long presence of the matter irritates the animal, and produces serious illness, and sometimes extensive sinuses. The emaciation of the animal, when the tumour continues long, or is improperly treated, is incredible.

The treatment is the same as in the horse; blister, and blister actively. Bleeding is somewhat oftener allowed, but should not be resorted to unless very considerable fever prevails. The discharge from the matter being longer retained, owing to the indistinct pointing or fluctuation, is oftener fœtid and bloody than in the horse. The chloride of lime will remove the fœtor, and the tincture of aloes will heal the wound. A physic drink (one pound of Epsom salts with half an ounce of ginger) will be useful, and the same tonics may be administered if the debility be very great.

SWELLINGS UNDER THE THROAT IN THE DOG.

A phlegmonous tumour, precisely in the same situation, and accompanied by as much constitutional disturbance, with the exception of there being little or no cough, often appears in the dog. Comparing the size of the animals, these tumours are much larger in the dog than in either the horse or ox; but they run more up the face, and do not press so much upon the windpipe, nor do I recollect any apparent danger of suffocation from them; but the whole head has been enlarged to a frightful

degree, and the eyes have been completely closed. More than a quart of fluid has sometimes escaped from a middle-sized dog at the first puncture of the tumour.

The mode of treatment is the same in order to stimulate the part, to expedite the suppuration of the tumour, and to lance it freely and deep, as soon as matter is evidently formed. The wound may be dressed with tincture of aloes, but a thick bandage must be placed round the neck, to prevent the dog from scratching the part, and causing dreadful laceration.

Cystic Tumours.—These tumours in the throat of the dog are not always of a phlegmonous character; they are cysts, sometimes rapidly formed, and of considerable size, and filled with a serous or gelatinous fluid. Lancing will here be of no service, for the orifice will heal and the cyst will fill again. A seton must be passed through the tumour, and worn until the cyst is obliterated by the adhesion of its sides.

AN OUTLINE OF THE THEORY AND TREATMENT OF STRANGLES, AS TAUGHT AT THE ENGLISH VETERINARY COLLEGE.

This disease is so named from the occasional danger of suffocation, in consequence of the pressure of the tumour on the upper air-passages. It is inflammation of the cellular membrane beneath the skin, between the branches of the lower jaw. It is a disease of which young horses are very susceptible, and from which very few escape, when many are confined together and exposed to the exciting causes of it; but where there are only one or two horses it is not so likely to happen; and for one horse attacked with strangles at grass a thousand have it in the stable.

Its most frequent cause is the heated and foul air of ill-ventilated stables—that which is also the cause of catarrh, inflammation of the lungs, farcy, and glanders. A young horse coming from pure and cool air to the hot and polluted atmosphere of a stable is almost sure to have it. When a young horse is taken by the breeder to the fair for sale he is usually healthy enough on his journey, he breathes the natural atmosphere; but before he has been in the dealer's stables four or five days, he either has distemper (which is inflammation of the membrane lining the nostrils) or strangles (inflammation of the membrane under the throat).

Few horses are affected with strangles between the months of May and September—the temperature within and without the

stable is then pretty much the same; but when, in other seasons, the temperature is so many degrees higher within than without the stable, strangles and distemper are very common. A horse taken up in the summer months is gradually accustomed to the stable, without those alternations of temperature to which he had not been previously accustomed, and which are so prejudicial to him.

Strangles is certainly a contagious disease. It has been produced by inoculation, but few became affected in this way: when so many young horses become affected at the same time, it is because they have been all exposed to other causes far more prevalent than contagion.

The inflammation once established, a distinct hard tumour begins to be evident between the jaws, the progress of which to suppuration should be assisted; for if the inflammation does not go on to suppuration, and burst, the animal does not recover for a considerable time, and the constitution seems to receive very serious injury. Fomentations and poultices are the best applications; and if no great progress is made by their use, the liquid blister may be well rubbed.

In the early stage, however, and before the tumour is decidedly formed, it may be well to consider whether the whole may not be got rid of by a blister—whether dispersion and absorption may not be produced in the first instance, for the matter or virus may then be taken up and carried off; but if the tumour suppurates, it becomes a kind of gland, and continues to secrete the poison. A blister, which hastens the suppuration when the tumour is formed, may be a very useful and effectual repellent in an earlier stage. If the tumour is to be brought to suppuration, there must be no bleeding; but nutritious diet must be given, except there is very great fever; and as soon as the matter is evidently formed, the tumour should be lanced; care, however, should be taken that the matter is actually formed, otherwise the process of suppuration might be suddenly checked by the puncture, and the horse might not do well. In cases of distemper, where there is no swelling, bleeding and purgatives would be highly beneficial.

The nose-bag will be found very useful in the treatment of strangles.

It is supposed that a horse cannot have strangles more than once, and, generally speaking, this is true; but there have been some instances in which there has been decidedly a second attack.

THE THEORY AND TREATMENT OF STRANGLES, CORYZA, &c., AS TAUGHT AT THE FRENCH VETERINARY SCHOOL AT ALFORT.

[Extracted from Professor Vatel's Elements of Veterinary Pathology.]

INFLAMMATION of the mucous membrane of the nose may be simple or complicated with bronchitis, pharyngitis, laryngitis, &c. It may also be sporadic or epizootic, affecting young or adult animals.

RHINITIS IN MONODACTYLES*.

A. *Acute rhinitis in young horses* (strangles) is usually associated with laryngitis, sometimes with pharyngitis: it is a true *rhino-laryngitis*. It manifests itself by the heaviness of the head, disgust of food, listlessness, fever more or less intense, redness of the nasal membrane, which, at first dry, soon secretes a limpid fluid, that is not long in becoming, to a greater or less degree, white and consistent. The cellular tissue and ganglions of the channel between the jaws become inflamed, enlarged, and suppurate. An abscess is formed under the jaw. When the inflammation is very intense, so that it extends to the trachea and the lungs, there is some cough, difficulty of breathing, heaving of the flanks, heat in the mouth, viscous slaver, intense fever, &c. Sudden change from green to dry food appears to be the principal cause of this disease, and it usually attacks horses from two to five years old; sometimes, but very rarely, it appears before or after that period.

When the symptoms of strangles are not very intense (mild strangles), no stimulating treatment should be made use of. The patient should be kept in a moderate temperature, his solid food should be slightly diminished, and the neck and susceptible parts of the body covered, to keep up the heat. The running from the nose now insensibly diminishes, the abscess under the jaw breaks, and the animal is usually convalescent in about twenty days. When the inflammation is very intense (malignant strangles), antiphlogistic means must be had recourse to. (See acute rhinitis in adults.) When the organs of respiration participate in the inflammation, those remedies should be made use of which are recommended in the articles on bronchitis, pneumonia, &c.

B. *Acute rhinitis in full-grown horses* (coryza, morfondure, nasal catarrh, bastard strangles), presents itself under the following characters:—The animal snorts frequently; the nasal

* From Ριν, nose. Inflammation of the nasal membrane.

membrane is at first dry, hot, and red; very soon a secretion appears, at first aqueous, colourless, and limpid, falling by drops or in little streams. It becomes afterwards whiter, more consistent, more viscid, &c. Frequently the lymphatic glands of the jaw participate in the irritation; they swell, and sometimes suppurate. This affection frequently unites itself with bronchitis, gastritis, and gastro-enteritis, &c. It sometimes prevails epizootically. When resolution takes place, the disease runs its course in the space of fifteen or twenty days. When the irritation continues beyond that time, the affection is become chronic.

The ordinary causes of this disease are those which tend to produce coldness of the skin and suppression of perspiration.

The treatment of acute rhinitis in adult monodactyles consists in removing from the patient all the determining causes, by placing him in a warm temperature, recalling the perspiration by frictions, coverings, &c.; and calming the inflammation of the pituitary membrane by warm emollient fumigations, if it is not very intense, and by bleeding, spare diet, and the use of emollient drinks, if the fever is much developed, and particularly if the respiratory organs participate in the inflammation.

C. In cases of *strangles and very acute nasal catarrh*, there frequently appears, on the surface of the pituitary membrane, ulcerations more or less extended, which may be considered as the result of an inflammation very intense (malignant strangles, and nasal catarrh), accompanied by debility and fever, and often associated with pharyngitis, laryngitis, pneumonia, &c. The severest antiphlogistic remedies are the only ones to be opposed to this disease, the characteristic symptoms and accompaniments of which cannot be confounded with *nasal phthisis*, or with *gangrenous* affection of the nasal membrane, of which mention is made at the end of this article.

D. *Chronic rhinitis* is usually the consequence of acute rhinitis; sometimes, nevertheless, it arises spontaneously.

In the first case, the inflammatory symptoms have almost entirely disappeared, but the running continues. The redness of the nasal membrane is often replaced by a paleness more or less marked; the matter which covers this mucous membrane gives it a shining appearance; the enlargement of the glands of the jaw becomes *indolent;* the irritation remaining, it usually determines in alteration of the pituitary membrane, and the development of various morbid productions, such as *scirrhus, encephaloid tumours, tubercles,* &c., the presence of which constitute *nasal phthisis.*

In the second case, when chronic rhinitis is developed spon-

taneously, the inflammatory appearances are but slightly marked at the commencement—the discharge and the almost indolent swelling of the ganglions are the most apparent symptoms. The continuance of the irritation under this form gives birth to the same alterations as in the preceding case.

Chronic rhinitis is often very difficult to cure. It ought to be combatted by antiphlogistic treatment, always modified according to existing circumstances: thus, when the mucous membrane is pale, it is sometimes necessary to excite its organic action by slightly stimulating fumigations; after these, setons or blisters on the cheeks or at the back of the ears, or purgatives (always when there does not exist any marked irritation of the digestive canal), seconded by all the means proper to restore the animal to health, are the agents on which we may most securely rely.

E. The affection of the nasal membrane, known by the name of *contagious disease of the head* and *gangrenous coryza**, is rarely idiopathic; it is, in the great majority of cases, symptomatic of a typhoid affection almost always mortal.

The symptoms of this disease are variously developed. Thus it often happens that an animal about to be attacked by it appears one moment very lively; but he soon becomes dull, listless, loses his appetite, sweats with the least exercise, and staggers as he walks. Soon afterwards the scrotum becomes engorged, and the spermatic cords enlarged. The eyelids are always swelled, and have a yellow tint. Then the nasal membrane, being of a pale yellowish red, becomes covered with spots like the sediment of wine; they are true *ecchymoses*, and very irregularly placed, and varying in size from a lentil to a twenty-sous piece, or more. This membrane is also covered with gangrenous spots, white and soft, which give place to ulcerations more or less numerous. A yellow matter runs from the nostrils, ordinarily transparent, and very fœtid; and the glands of the jaw are inflamed, and become tender when they are touched. The lips, and the orifices of the nostrils, and a portion of the cheeks, become swelled; and this swelling spreads even to the zygomatic arch. The membrane of the mouth is sometimes covered with spots analogous to those of the nose. The limbs swell as high up as the fore-arm and the stifle. In many cases tumours appear on different parts of the body, varying in their nature and size; those which are about the size of a filberd, or larger, appearing to be furunculous; the others, more voluminous, contain a purulent greyish matter, often mixed with streaks of blood. The respiration becomes accelerated, the patient rapidly

* This is one of those diseases which are confounded under the improper name of *acute glanders*.

falls away, the belly is tucked up, diarrhœa sometimes follows, and the animal usually dies in the course of five or six days.

At the post-mortem examination, the muscular surfaces corresponding with those parts of the body on which the eruptions had appeared, are red, covered with a purulent inodorous matter, sometimes bloody. The gastric and intestinal mucous membrane is more or less red, injected, and softened. These traces of inflammation are sometimes limited to the stomach; sometimes also they are seated on isolated portions of the small or large intestines. The kidneys are often softened and pale; the liver is frequently voluminous, and destitute of its natural colour; the pleuræ are injected; the lungs, gorged with black blood, and frequently containing cavities with thick parietes, filled with pultaceous matter, are often covered with deposits of puriform and fibrous matter more or less condensed. The larynx, the pharynx, and the bronchiæ, are often reddened, thickened, and covered with gangrenous sloughs. In many of the carcasses the heart is softened, and its tissue discoloured. The nasal membrane is always red or yellow, more or less infiltrated and covered with ulcerations; and gangrenous sloughs are more or less multiplied.

Among the numerous causes of this affection, the first is the keeping of the animals in infected air, in badly ventilated, damp, or low stables, where they are exposed to the injurious influence of animal and vegetable substances in a state of putrefaction, the use of bad food, &c. It is said that, in some cases, sudden change from poor to abundant food, and the sudden changes of the seasons, have materially influenced its appearance. It may be developed spontaneously both in healthy animals, and in beasts already attacked by chronic diseases of the respiratory passages (rhinitis, chronic pneumonia, and pulmonary and nasal phthisis).

The matter which runs from the nose of a diseased horse is capable of producing the same malady in a healthy one, after its inoculation on the pituitary membrane. This contagious affection is also as readily communicated to animals which have been previously attacked by scirrhous or tuberculous diseases of the nasal membrane and the lungs, as to those which are not so affected.

Two opposite modes of treatment have been pursued against this affection---the antiphlogistic and the stimulating. Bleedings from the jugular, emollient fumigations, setons and blisters on the cheeks, and at the back of the ears; diet, mucilaginous drinks, and clysters of the same nature, have not been found to be more successful than stimulating substances and tonics (powdered gentian, alder, wine, acetate of ammonia) in drinks; and

aromatic and vinous injections into the nostrils, &c. It is, unfortunately, but too well known, that this disease is almost always, not to say constantly, mortal. It is with this as with many other affections; it is easier to be prevented by seeking to remove the causes which assist in developing it, than to conquer it when it is developed.

RHINITIS IN DIDACTYLES.

Rhinitis is as often found in didactyles, and especially in sheep. In the latter animals the runnings of mucous matter, sometimes purulent, fœtid, and accompanied by excoriations of the nostrils, have also been designated under the comprehensive name of *glanders in sheep*. These runnings are sometimes owing to simple or acute rhinitis, sometimes to acute or chronic rhino-bronchitis, and also to acute or more frequently to chronic pneumonia.

The causes of simple and acute rhinitis are, heat and want of ventilation in the folds;—storms, rains, and coldness of the nights, when the animals are in the fields. Rhinitis is often the result of the introduction of the dust of the road traversed by these animals into the nasal cavities, and particularly in those which are taken to the fairs.

The patients are continually snorting; the respiration becomes difficult; it is impeded by the introduction of foreign bodies into the nostrils of the sheep, already perfectly filled. The discharge is at first a transparent mucous fluid; but it soon becomes thicker, and sticks to the edges of the nostrils, which it sometimes obstructs. Frequently some streaks of blood are visible in the matter secreted by the nasal membrane. The rhinitis which proceeds from these causes generally ceases when they are withdrawn.

Acute rhinitis is frequently caused by the inclemency of winter: it then, almost always, assumes a chronic form; and remains until the return of fine weather, which generally dissipates it. Nevertheless, in some cases the irritation continues; the mucous membrane takes on a purulent greenish hue, and the discharge continues for a very long period. This disease seems to have no bad influence on the health of the animals, who usually seem otherwise in good condition. The snorting and the discharge from the nose are the only symptoms which attract the attention of the shepherds or farmers. Nevertheless many of the sheep rapidly lose flesh, and this denotes the existence of pulmonary phthisis, or of other affections of a similar nature.

SINGULAR EXOSTOSIS ON THE ANTERIOR MAXILLARY BONE—ITS SUCCESSFUL REMOVAL.

By Mr. C. Dickins, *V.S. Kimbolton.*

About the middle of February last my attention was called by a respectable smith to a two-year old cart colt, the property of a farmer in this neighbourhood, having, as he described, a large lump forming on the off side of the jaw. On examination I found it, as he represented, completely covering three of the incisor teeth; or rather occupying their situation, and throwing the lip back to that degree, that the poor animal could only take its food in on one side of the mouth. On inquiry the owner informed me he had bought him about six weeks before, without observing this, of a stranger, being at that time not larger than a walnut, but now daily increasing, and appears extremely vascular, but not very sensitive, and covered with a laminated substance similar to the mouth. I advised the owner to let me take it off; to which he at length gave his consent, seeing the poor creature was starving: I therefore cast him, and, and on cutting into it, found the ossific process forming to a great extent, so much so, that I was obliged to use the saw through the major portion of it, which, when detached, weighed eight ounces. Considerable hæmorrhage followed from three distinct arterial branches, but which were easily stopped by the cautery; and the healing process was attended with the best success, by applying for a few days simple dressings of tincture of myrrh. I saw him a few days since in perfect health; but no appearance of its growing again, or yet of any teeth, which leads me to suppose it must have been the effect of accident, in which the teeth got kicked or knocked out.

ANNUAL EXAMINATION AT THE EDINBURGH VETERINARY SCHOOL.

This important department of the Highland Society of Scotland having last week terminated its season, the examinations of students intending to pass took place upon Wednesday and Thursday last. The candidates, as usual, were minutely examined by several of the principal members of the medical profession in Edinburgh, and in presence of a number of the directors, members of the Society, and other gentlemen. Of the medical gentlemen, we observed Professors Sir George Ballingall and Graham, Drs. Davidson, Mackintosh, and Borthwick, Messrs. Newbigging, Wood, Gillespie, and Fergusson. Of the directors,

&c., in charge, and who took a lively interest in the progress of the examinations, besides Mr. Fergusson of Woodhill, the Convener of the Veterinary Committee, we observed Sir John Hope, Sir John Ogilvy, Sir Patrick Walker, Mr. Dempster of Skibo, Mr. Duff of Hatton, Mr. Elliot of Wolflee, Messrs. John and James Fergusson, Mr. Gordon of Cairnbulg, Mr. Inglis of Redhall, Mr. Robert Johnston, Professor Low, Mr. Lockhart of Tarbrax, Mr. Menzies of Pitfodels, Major Menzies, Mr. Clark Rattray of Craighall, Mr. Robertson, jun. of Kinlochmoidart, Mr. Robertson Scott of Benholm, and Mr. M'Micken Torrance of Kilsaintninian, with the Secretary and Depute Secretary of the Society. It is but justice to Mr. Dick and to the young men to state the satisfaction which the examinators expressed at the knowledge and acquirements displayed by the candidates.—Nine young men, viz. John Wishart, Strathmiglo, Fifeshire; William Young, Garnkirk, Lanarkshire; James Johnston, Cruden, Aberdeenshire; John Clark, Auchinbowie, Stirlinghire; Archibald Duff, Edradour, Perthshire; Daniel Robertson, Strathsay, Perthshire; Thomas Thomson, Redstone, Perthshire; William Aitken, Kilmarnock, Ayrshire; and Andrew Young, Jedburgh, Roxburghshire, received certificates, and were found qualified to practise the veterinary art. At the close of the examinations the Convener stated shortly the favourable termination of the business, and admonished the young men to bear in remembrance the obligations they lay under to their very able teacher Mr. Dick; and expressed a hope that, in their future career, they should maintain a professional and personal character worthy of the institution from whence they went forth. He concluded by wishing them every prosperity, and by returning thanks in their name, and in that of the Highland Society, to the medical gentlemen who had so kindly devoted their valuable time to the present examinations. Mr. W. Wood, in his own name and that of his friends, assured the meeting of the high gratification which they had received in performing the duty of examinators, and, in most appropriate terms, alluded to the uncommon success of Mr. Dick as a teacher, evinced year after year in the appearances made by his students. Mr. Wood very earnestly impressed upon the students the debt of gratitude they owed to their instructor, and which would be best discharged by an honourable and zealous prosecution of their profession, and a free and liberal communication to Mr. Dick of all remarkable cases which might come under their notice for the Society in the veterinary branch of their published transactions.

Mr. Dick returned his acknowledgments for the gratifying notice which had been taken of his humble exertions, which he said

would assuredly be an additional motive to his assiduous attention to the school. It was his duty, he added, to acquaint the directors and gentlemen present of the handsome and liberal manner to which Professor Monro, Dr. Knox, Mr. Liston, Dr. Thomas Aitken, Mr. Fergusson, and Dr. Murray, had opened their classes to the veterinary students—a privilege of the utmost importance, and which there could be no doubt materially affected the issue of the examinations on the present and former occasions.

ANNUAL EXAMINATION OF THE VETERINARY CLASS AT THE UNIVERSITY OF LONDON.

The examination of Mr. Youatt's Veterinary Class took place on the 24th ult. The following was the list of questions proposed by the lecturer. The students assembled in Mr. Youatt's theatre; all access to written or printed aid was rendered impossible, and answers were returned by them, with a motto appended: a sealed paper bearing this motto on the outside, and the name of the student within, being placed in a box, which was afterwards locked and sealed. The answers will be submitted to a jury of veterinary surgeons: certain numbers will express the worth of each; and the sum total of these numbers will indicate the actual improvement and attainment of each competitor.

1. Phthisis in Cattle, its causes, symptoms, and treatment?
2. The Distemper in Dogs, its causes, symptoms, and treatment?
3. The aid to be derived from auscultation in the diagnosis of Bronchitis, Pneumonia, and Pleurisy?
4. Broken Wind, its nature, causes, symptoms, and treatment?
5. Roaring, its nature, and treatment?
6. The diagnosis between Colic, Strangulation, and Enteritis?
7. The Rot in Sheep, its nature, cause, and treatment?
8. The difference in the hue of the Schneiderian Membrane in different diseases and stages of disease?
9. The Muscles of the Larynx, their situation and function?
10. The Chemical History of Calomel and Corrosive Sublimate?
11. The Diagnosis between Rabies, Epilepsy, and Distemper?
12. The Diagnosis between Epidemic Catarrh, Bronchitis, Pneumonia, and Pleurisy.
13. The Difference in the Treatment of these Diseases?
14. The Post-mortem Appearances in these Diseases?
15. Strangles, its nature and treatment?

THE VETERINARIAN JUNE 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

We have yielded to the suggestions, we may say the entreaties, of many of our readers; and have begun in the present number to bring together, so far as we have the power, the doctrines taught in different veterinary schools, on various points of physiology and pathology. We had begun to insert the lectures delivered at the University of London, long before we dreamed of any plan of this kind; but many of the lectures had not appeared before it was suggested to us that it would be very interesting, and conducive to the promotion of our main object and end,—the improvement of our art—if, as these lectures proceeded, we were to collect the opinions of teachers of other schools on the subjects discussed, and bring them into a kind of focus. The author of those lectures (all false delicacy apart) could have no objection: he had placed himself before the public: if he suffered by the comparison, he would be incited to deeper study; and if he did happen to be found not quite unworthy to enter the lists, he would bind up each mental energy to yet more successful efforts. We are assured that the value of our periodical will be much increased by the adoption of this plan, which we shall steadily and honestly pursue.

For the doctrines of the French school, we shall recur to papers published in the French periodicals on detached subjects by the different professors, or to their works on veterinary physiology and pathology; and we hope to be enabled to obtain sketches of the lectures of the most talented among them.

We shall endeavour to lay before our readers a concise yet not very inaccurate summary of the doctrines taught at the school at St. Pancras. If we depended on our own records, or chose to avail ourselves of those which have been kindly sent to us, of all dates, and from all quarters, and for which we return our cordial thanks, we believe that we could give a verbatim account of the lectures in some particular years; yet as these lectures, like all those delivered

from short notes, vary materially, in language, in illustration, and even in doctrine in different years, and more especially as Professor Coleman annually tells his class that the publication of them would be displeasing to him, we disavow any intention of this kind. There will be no verbatim copy even of a single lecture, or scarcely of a part of one, unless we could obtain permission, of which we should gladly avail ourselves, to give it. We shall content ourselves with a summary of the doctrines taught, and that generally in our own language or that of our correspondents, which Professor Coleman's pupils would wish to preserve, which the public has a right to demand, which we as chroniclers of veterinary transactions and science are justly expected to give, and to which Mr. Coleman cannot object. The doctrines of Mr. Sewell on the various diseases of the horse will likewise be recorded. If our statement should occasionally be in the least inaccurate, it will give us great pleasure to set ourselves right with these professors and the public.

We do hope that we shall derive information as to the doctrines taught in other schools, both near home and on the continent. They to whom we allude need not fear to enter into competition with teachers any where.

With these abstracts before him, and with the works of Percivall and of Blaine, and perhaps we may add "The Farmer's Series," the student and the practitioner will have a sufficient library for every theoretical and practical purpose. Let our readers occasionally add their illustrations, whether corroborative or otherwise, and we shall have little more to wish for.

The anatomical paper at the beginning of this number is long, and may seem to give a kind of heaviness to the whole; but the subject is important and interesting—most highly so: it had as yet formed no part of Mr. Percivall's work, and it could not well be divided or curtailed. Even an anatomical detail on such a subject cannot be tediously dry.

Our readers will recur with considerable pleasure to the announcement of the examination of the veterinary pupils in the Scotch school, and in the University of London. The result of

the day must have been very gratifying to Mr. Dick. He is, indeed, entitled to the gratitude of his pupils, and he is highly and justly esteemed by the profession: but we confess that we should have been better pleased, if we had seen the names of two or three veterinary surgeons among the great men who presided. Mr. Dick's examination in 1830 led us to hope that he would have pursued the system then commenced, and dictated equally by common sense, and a regard to the dignity of his profession. The examination of one veterinary surgeon would have been more efficient than that of all these gentlemen, high as they deservedly rank in their own profession; and would have been more valued by the pupil and the public. Their presence on such an occasion was doubtless gratifying to Mr. Dick; but he knows as well as we do, and they know too, that there was not a man among them capable of deciding whether the candidates were qualified for *veterinary practice.* We will say no more about the matter at present, except that Mr. Dick is not, perhaps, quite aware how much he rose in the estimation of every liberal practitioner in the English metropolis for the act of justice which he did his pupils and his brethren,—the practical assertion of our claims—by the introduction of veterinary examiners, at the annual distribution of his certificates of merit.

Studens.—We are as indignant as he can be. The students, as well as the professors, should have at heart the honour of their institution, and the respectability of their profession. The instructor will fruitlessly labour if the student will disgrace himself. We have, however, on mature consideration, as he is probably by this time aware, taken a different course from that which he points out, and one, we trust, quite as effectual.

Sporting Department.

THE strangest changes have taken place in the odds for the Derby since our last report, and the latest statement which we are enabled to give may probably very unfaithfully represent the character of the betting when our Journal is published.

DERBY.

	April 27	30	May 3	8	9	10	11	17	24	28
Perion Dariolletta	6½	7	7	20	30	17	11	12	10	10
Beiram	10	9	9	8	4	9	—	8	11	14
Trustee	10	10	10	12	14	7	7	6	6	5
Margrave	11	9	9	8	8	—	11	10	9	9
Non Compos	14	12	10	11	25	—	25	22	20	20
Byzantium	15	20	22	16	9	—	17	—	—	—
Minister	18	17	18	20	16	—	20	16	16	12
Gratis	20	22	—	28	25	—	25	20	20	18
Messenger	20	—	20	40	—	—	—	—	—	—
Rotterdam	22	27	14	—	—	—	—	—	—	—
Daft Jamie	25	—	27	20	20	—	20	25	22	20
Mirabeau	30	25	—	25	—	—	—	—	—	—
Spencer	40	40	—	—	—	—	—	—	—	—
Mr. Dundas's Colt	—	35	—	30	—	—	30	33	—	—
Count Robinson	—	—	18	18	—	—	—	—	—	—
Haymaker	—	—	—	40	—	—	—	40	—	—
Mr. Batson's Colt, Mixbury	—	—	—	—	20	7	7	8	6½	7
Damascus	—	—	—	—	33	—	30	30	30	25
St. Giles's	—	—	—	—	—	12	12	13	14	13
Emiliana	—	—	—	—	—	—	—	—	25	25

OAKS.

Emiliana	7	7	7	—	7	—	8	7	7	4½
Dryad	8	10	9	—	9	—	10	9	9	11
Advance	9	10	—	—	9	—	6	5	5	6
Olga	10	9	10	—	10	—	20	—	—	—
Whimsey	11	10	—	—	8	—	5	9	4½	5
Eleanor	14	—	—	—	—	—	15	—	14	—
Damascus	—	—	—	—	—	—	—	40	—	—
Kate	—	—	—	—	—	—	—	—	13	—
Elfrid	—	—	—	—	—	—	—	—	13	—
Lady Fly	—	—	—	—	—	—	—	—	15	10
Dream	—	—	—	—	—	—	—	—	20	—

ST. LEGER.

	Apr. 30	May 11	17	24	28
Fang	8	6	6	7	7 to 4
Margrave	20	20	—	20	—
Beiram	20	—	—	—	—
Archibald	—	20	—	20	—
Minister	—	20	—	—	—
Ludlow	—	20	20	14	—
Physician	—	—	25	—	—
Birdcatcher	—	—	20	—	—
Trustee	—	—	—	20	—
Georgina	—	—	—	20	—
Julius	—	—	—	20	—
Bassetlaw	—	—	—	25	—
Perion	—	—	—	25	—
Francesca	—	—	—	25	—
Brother to Maria	—	—	—	—	6

THE

VETERINARIAN.

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ANATOMY OF THE HORSE.

[Concluded from page 320.]

INTERNAL PARTS OF THE FOOT.

THE internal, sensitive, organic parts of the foot, comprise the *bones, ligaments, tendons, coronary substance, cartilages, sensitive laminæ, sensitive sole,* and *sensitive frog.*

THE BONES entering into the composition of the foot, are the *coffin* and *navicular bones:* to which may be added (as forming part of the coffin-joint, and consequently having intimate relation to them), the *coronet bone.* Their descriptions will be found given at pages 57, 58, 59, and 60.

THE LIGAMENTS have likewise been already described at page 75, in giving the particulars of the coffin-joint.

THE TENDONS immediately connected with the foot are those of the *extensor pedis* and the *flexor pedis perforans:* the former being inserted into the posterior concavity of the coffin-bone; the latter into its coronal process, as described at pages 140 and 144.

The Coronary Substance,

A less inappropriate name for the part commonly called the *coronary ligament**.

To revert, for the sake of elucidation here, to former description—after the hoof has been detached by a process of maceration or putrefaction, in a perfectly entire, uninjured condition, it presents around its summit a circular groove, bounded in front by a soft whitish substance, having a thin edge, and being of a nature between horn and cuticle; and behind, by an attenuated margin, more horny in its character, whose thin edging is denti-

* Averse as I am to changing or altering names, nothing less than a palpable contradiction, in regard both to *structure* and *function*, would have induced me to do so in the present instance.

culated or serrated. Into this circular groove or canal is received the terminating margin of the cutis; the cuticulo-horny layer of the hoof, in front of it, having every appearance of being a continuation of the cuticle.

Situation—Dimension.—The coronary substance occupies the concavity formed upon the inside of the superior or coronary border of the wall of the hoof: it is the part constituting the basis of the circular prominence commonly distinguished in the living animal as the *coronet*. It is broadest around the toe of the wall, diminishing in breadth towards the quarters and heels, and being somewhat broader around the outer than the inner side. It is thickest in substance around its middle and most prominent parts, growing gradually thinner both above and below.

Connexion.—Externally, the coronary substance is connected with the hoof; and the connexion appears to be principally, if not entirely, of a vascular nature: the surface of the wall presenting a porous honeycomb-like texture, and the *villi* or vessels issuing from the coronary substance entering the pores, and thus establishing an intimate and extensive vascular union between these organic and inorganic parts. Internally, the coronary substance is connected with the coffin-bone, the extensor tendon, and the cartilages, by a fine, dense, copious cellular tissue, which at the same time forms a bed for the assemblage and ramification of the bloodvessels concerned in the secretion of the wall of the hoof. Superiorly, its union with the skin is so intimate and complete, that one has been thought to be a continuation of the other; and, so far as meets the eye of a common observer, they might be taken as such: but, when we come to examine them by anatomical tests, we not only find a line of external demarcation between them, but discover such difference of internal structure as forbids the adoption of this delusive notion. As it descends upon the coffin-bone, the coronary substance not only grows thinner, but in growing attenuated becomes imperceptibly gathered or puckered into numerous points from which issue a like number of plaits or folds, which afterwards form the sensitive laminæ. It is worthy of remark, that the part of the bone upon which this transformation takes place is smaller in circumference than the coronet; consequently the same measure of coronary substance which but tensely and smoothly covered the latter, admitted of being disposed in gathers or folds so soon as it reached the former. Posteriorly, the coronary substance forms a junction, and becomes continuous in substance with the heels of the sensitive frog.

Structure.—The coronary substance discloses three different parts in its composition:—1. *A fibro-cartilaginous circling band,*

forming the substratum and basis of the entire structure. 2. *A cuticular covering*, so called from its resemblance in texture to the cutis. 3. *A network of bloodvessels*, reposing upon the former, and covered by the latter. The cartilaginous structure, freed from its valcular connexions, is found to be wrought in the form of a coarse, open, irregular network, and appears designed mainly for the purpose of affording a bed for the lodgment and ramification of the bloodvessels destined to produce the wall. The looseness of its connexion, added to its own elasticity, renders this substance peculiarly adapted to accommodate itself to the motions of the coffin-joint, and thus preventing those movements from operating prejudicially to the superimposed glandular structure.

Organization.—The coronary substance may be ranked among the most vascular parts of the body: no gland even possesses, for its magnitude, a greater abundance of bloodvessels, or of bloodvessels (taking them generally) of larger size; nor does there exist any part in which greater care appears to have been taken to arrange its vessels so as to insure an uninterrupted supply of blood. These vessels it is that produce the wall; and there is every reason to believe that they perform this office without any assistance from the vessels of the laminæ.

The Cartilages

Are two broad, scabrous, concavo-convex, cartilaginous plates, erected upon the sides and wings of the coffin-bone. Professor Coleman calls them "the *lateral* cartilages," in contradistinction to two others he has named "the *inferior* cartilages."

Situation.—The cartilages form the postero-lateral parts of the sensitive foot, extending the surface considerably in both these directions.

Attachment.—The cartilages are fixed into fossæ excavated in the supero-lateral borders of the coffin-bone. Their anterior parts become united, on each side, with descending lateral expansions from the extensor tendon, and are also attached to the coronet bone by cellular membrane. Their posterior parts surmount the *alæ* or wings of the bone, to which they are firmly fixed, and from which they project backwards, beyond the bone, giving form and substance to the heel. Supposing one of the cartilages to be divided into two equal parts by a line drawn horizontally across its middle, the superior half, which extends as high as the pastern-joint, is covered by skin only; and on that account is quite perceptible to the feel, and even to the sight, as the animal stands with his side towards us. The lower half is covered,

superiorly, by the encircling coronary substance; inferiorly, by sensitive laminæ: consequently, altogether, by the hoof, which envelopes both the coronary substance and the laminæ. The extreme posterior ends of the cartilages incurvate downward and backward; but, being overreached by the heels of the sensitive frog, any abrupt or exposed termination of them is prevented. Around these points also the coronary substance makes its inflections upon the sensitive frog, thereby giving them additional substance and support.

Form.—Considered in the detached state, the cartilage in its general figure describes an irregular quadrangle, of which the supero-anterior and infero-posterior angles are the most projecting; the latter at the same time being incurvated inwards. Externally, the cartilage is pretty regularly convex; internally, it is unevenly concave, the surrounding border turning inwards into the substance of the sensitive frog. The posterior part of the cartilage is somewhat thinner than the anterior, and has several foramina through it—three or four of large size—which transmit vessels to the frog.

THE FALSE CARTILAGES.—From the inferior and posterior sides of the *true* cartilages, proceed in a direction forward—towards the heels of the coffin-bone—two fibro-cartilaginous productions, to which Mr. Coleman has given the name of "*inferior* cartilages." If they are to be considered as *cartilages,* I prefer denominating them *false;* they being, as well in structure as in use, different from the real or lateral cartilages. They spread inwards upon the surface of the tendo perforans; become united at their inner sides with the superior margin of the sensitive frog; are covered inferiorly by the sensitive sole; and at the same time assist in the support of the sensitive frog. They are triangular in their figure, and are arched in the same manner as the sole.

Use.—Their use appears to me to be, to fill up the triangular vacant spaces left between the tendo perforans and heels of the coffin-bone, thereby completing the surface of support for the sensitive frog, and extending that for the expansion of the sensitive sole. Bone in these places must have proved inconvenient by more or less impeding the impression upon—and consequent reaction of—the sensitive frog.

The Sensitive Laminæ or Lamellæ.

So is denominated the laminated, membranous, vascular structure clothing the wall of the coffin-bone.

Production.—The sensitive laminæ appear to be derived from the coronary substance—the one, in fact, seems to be a continua-

tion from the other; for if, in a foot in a putrid condition, we attempt to part them by force, we may make an artificial rent somewhere, but can find no natural separation between them. The cuticular covering of the coronary substance having descended upon the coffin-bone, the circumference of which is less than that of the coronet, becomes thereupon gathered into numerous little plaits or folds, which proceed in parallel slanting lines down the wall of the bone: a transformation it may be difficult to explain, since the laminæ unfolded would occupy a much larger surface than the coronet; at the same time, it is one that has its parallels in the animal constitution, and a remarkable one in the instance of the ciliary processes.

Division.—According to this mode of derivation, every lamina consists of one entire plait or duplication of substance, having its *inward sides* intimately and inseparably united; its *outward sides* being the surfaces of attachment for the horny laminæ. It has also two *borders;* one opposed to the coffin-bone, the other to the hoof: and two *ends* or *extremities,* one issuing out of the coronary substance, the other vanishing in the sensitive sole.

Structure.—The substance of the laminæ when held to the light evinces a degree of transparency; although its nature is extremely dense, and it possesses extraordinary toughness and tenacity. Veterinary writers and lecturers endowed the laminæ with a high degree of elasticity: but it appears to me that the property is referrible to their connexions, and not one that is inherent in their own substance.

Elastic Structure.—This is a *substratum* of a fibrous periosteum-like texture, attaching the laminæ to the coffin-bone, in which it is that the property of elasticity resides to that remarkable extent usually ascribed to the laminæ themselves: indeed, so elastic is it found to be, that it can be made to stretch and recede the same as a piece of Indian rubber. Its fibres take a direction downward and backward. At the same time it affords a commodious bed for the ramification of bloodvessels issuing from the substance of the bone, in which they are (particularly in the stretched condition of the substance) protected from injurious compression and consequent interruption to their circulation.

Number.—In round numbers we may estimate the laminæ at about 500; not including those of the bars. They vary, however, in number: I have reckoned upwards of 600.

Dimensions.—In length they decrease from around the toe towards the sides and heels in a corresponding ratio with the wall: those in front, the longest, being rather more than two inches in extent; the shortest, those at the heels, being rather

less than one inch. In breadth there is no variation: all measure alike—one-tenth of an inch.

Organization.—The laminæ are highly organized, though they are not equally so with the sensitive sole or sensitive frog; nor are they so red as those parts: and the obvious explanation of this is, that (over and above what is requisite for their own nutrition) all the blood they have occasion for is only that which is sufficient for the secretion of the horny laminæ.

The Sensitive Sole.

The sensitive sole, or (as Sainbel calls it) the fleshy sole, is the fibro-vascular substance covering the arched concave, or ground surface of the coffin-bone: in fact, is the part corresponding to the horny sole.

Structure.—The same kind of elastic fibrous structure that sustains the laminæ is found constituting the groundwork of the sensitive sole; only that in the latter case it is closer, denser, and firmer in its texture. Upon this is spread a remarkably beautiful venous net-work. And the whole is enveloped in an outer cuticular covering, derived from the heels and frog, from which are sent villous processes, loaded with the points of arteries, into the porosities of the horny sole: not, however, perpendicularly downward, but in an oblique direction—downward and forward—the same in which the horny fibres grow.

Connexion.—Around the circumference of the coffin-bone, the sensitive sole is connected with the fibrous substance descending from the wall, together with the tapering, vanishing points of the laminæ. In the centre, it is united with the bars and frog. But its principal attachment consists in its being firmly rooted into the sole of the coffin-bone; a connexion that receives considerable addition from the bloodvessels issuing out of the substance of the bone.

Thickness.—The sensitive sole varies in thickness at different places. On an average, it my be said to measure one-eighth of an inch in thickness. In the vicinity of the frog, it is something less than this. At the heels, it possesses double that thickness.

Organization.—This is one of the most vascular and sensitive parts in the body. Independently of the much admired venous net-work expanded over the fibrous substance of the sole, arteries enter it issuing from the substance of the bone, and penetrate its villi, which, by taking this course, elude all compression and obstruction: there are also others—the nutrient arteries; but these have an external origin, from the inferior coronary artery. The chief assemblage of arteries takes place within the villi, upon the

cuticular surface—those issuing out of the interior of the bone simply passing through (without ramifying within) the fibrous substance: so that, if the substance of the sole be laid open by transverse section, the incised edge, near the surface, exhibits a deep red tint, while the interior, nearer the bone, has a pinkish or pale red aspect.

The Sensitive Frog.

Under this head is included the cleft cuneiform body, projecting from the bottom of the foot, together with the substance continued from it and filling the interval between the cartilages. Sainbel calls it "the fleshy frog."

Division.—We distinguish, in the sensitive as in the horny frog, an *apex* or *toe;* two *heels,* separated by the *cleft;* and a portion intermediate between these, which is the *body.*

Situation and Connexion.—The sensitive frog occupies the posterior and central parts of the bottom of the foot, forming in the tread a firm and secure *point d'appui.* Being in the hoofless foot equally prominent with the projecting edge of the coffin-bone, one might be led to infer that the horny frog should take the same line of bearing with the crust. The frog, altogether, is lodged in a capacious irregular space, bounded superiorly by the tendo-perforans and common skin, laterally by the cartilages, and inferiorly by the horny frog: with all which parts it has connexions; besides being continuous with the sensitive bars and sole, and at the heels with the coronary substance. On its sides are two shallow ill-defined hollows, corresponding to the commissures of the horny frog, into which are received the horny prominences opposed to them.

Structure.—Entering into the composition of this body we distinguish four parts:—An exterior or cuticular covering; a *congeries,* or network of bloodvessels; a fibro-cartilaginous texture; and an elastic interstitial matter.

The exterior or *cuticular covering* invests the prominent bulbous portion of the frog, and also gives a lining to the cleft. Superiorly, it is continuous with the skin descending upon the heels; anteriorly, with the cuticular covering of the coronet; inferiorly, with that of the sole. Numerous villous processes sprout from its surface, and enter the porosities in the interior of the horny frog, taking a direction downward and forward, the same as that in which the fibres of the horn grow.

The vascular covering succeeds the cuticular, lying immediately underneath it. It consists of a network of bloodvessels, principally veins, but which are not so thickly set as upon the sole.

The fibro-cartilaginous case comes next. We find it spread

over those parts most subjected to pressure, and is, in many places, one-fourth of an inch in thickness. From its interior are sent off numerous processes, pervading the elastic matter of the frog, forming so many *septa* intercrossing one another, and dividing it without any notable regularity into many unequal compartments. In the posterior and bulbous parts the septa exist in greater numbers, and are closer arranged than in the middle parts. The fibres of this vaginal substance run obliquely downward and forward, and become intermixed around the borders with those of the bars and sole.

The elastic interstitial matter, however, composes the bulk of the sensitive frog. It consists of a pale yellowish soft substance, which has been mistaken for fat or oil, and hence has been named "the fatty frog." When cut deeply into, it exhibits a granulated appearance, and the fibrous intersecting cords become apparent, putting on the ramous arrangement of a shrub or tree. Altogether, it forms a spongy elastic body for which we lack some more appropriate name.

ON THE EDUCATION OF THE HORSE.

By Mr. Karkeek, *V. S., Truro.*

Fortes creantur fortibus et bonis:
Est in *juvencis*, est in *equis* patrum
Virtus: nec imbellem feroces
Progenerant aquilæ columbam.
Doctrina sed vim promovet insitam,
Rectique cultus pectora roborant:
Utcunque defecere mores,
Dedecorant bene nata culpæ.

Horace, *book* iv, *ode* 4.

The Poet, in the beautiful ode whence the preceding verses were taken, appears perfectly aware that the brave beget the brave, and that courage and virtue are qualities which we derive from our ancestors; yet he observes, that it is *Education* that calls the hidden vigour forth, and improves the natural bent; for where this is wanting, our natural endowments are obscured by vices.

Who it was that first obliged mankind by taming the wild horse, and instructing them in the art of horsemanship, is not agreed by the ancient fabulous writers. Whoever he was, he seems to have left it very imperfect, since in these early ages neither saddles nor bridles were in fashion. Lucan thus describes

the Massylians, and it appears to have been the practice of several other nations—the Numidians, Getulians, and Libyans.

> Et gens quæ nudo residens Massylia dorso
> Ora levi flectit frænorum nescia virgâ.

> Without a saddle the Massylians ride,
> And with a bending switch their horses guide.

"Afterwards bridles," says Potter, "came into fashion; of which the most remarkable were those called *lupata,* having bits of iron, not unlike wolves' teeth, and therefore called in Greek Λύκοι, in Latin *lupi;* whence Horace,

> "Gallica nec lupatis
> Temperat ora frænis."

> "Nor with the sharper bits
> Manage the unruly horse."

For saddles, the skins of wild beasts appear a very natural substitute. Parthenopæus's horse is covered with the skin of a lynx, in Statius; Æneas's, in Virgil, with a lion's—

> "Quem fulva leonis
> Pellis obit."

> "Covered with a lion's skin."

But the same poet makes mention of rich and costly clothing of horses,

> "Adorn'd with costly trappings, to whose breasts
> The golden poitrels hang."

We find no mention of *stirrups* in any of the ancient writers. But in those early ages they supplied the want of such helps by their art, or agility of body, being able to leap on horseback, as the heroes in Virgil,

> "Corpora saltu
> Subjiciunt in equos."

> "And by a leap bestride their horses."

Sometimes we find them leaping up by the help of their spears; whilst others, not so active, were mounted by the assistance of short ladders, or by getting up on the backs of their slaves; both which supporters were termed ἀναβόλεις. But for the convenience of some (portly gentlemen we opine), the horses were taught submissively to bow their bodies to the ground, and receive their riders upon their backs. Hence Silius speaks of the horse of Clælius, a Roman knight, in this manner:

> "Inde inclinatus collum, submissus et armos
> De more, inflexis præbebat scandere terga
> Cruribus."

"Downwards the horse his head and shoulders bent,
To give his rider a more free ascent."

We entertained an idea, until lately, that this latter method of mounting horses was one of a more modern invention; but we find that

"To turn and wind a fiery Pegasus,
And witch the world with noble horsemanship,"

was practised by the Greeks with as much skill as by Monsieur Ducrow himself; as among the several titles and appellations of horsemen, most of which were derived from the variety of their armour or different methods of fighting, that of Αμφιπποι, "sometimes by mistake," says Potter, "called ανιπποι," were such as for conveniency had two horses, on which they rode by turns, leaping from one to the other at full gallop, as appears from Homer's mentioning it.

——— ὁ δ' ἔμπεδον ἀσφαλὲς αἰεὶ
Θρῴσκων αλλοτ' ἐπ' αλλον ἀμείβεται, οἱ δὲ πετονται.

"Nor does he ever fall, tho' at full speed
The leap from one upon the other steed."

The bold and animated language of the Theban bard has immortalized both the horse and the rider at the Olympic games.

Through all Greece, individuals made a study and a merit of breeding the species of horses proper for the course, and prepared and brought them into the lists at the public games. Sovereigns frequently ranked themselves among the competitors for the prizes; and it is said that Philip, king of Macedon, felt more pleasure at having gained a victory at the Olympic games, than at hearing, almost at the same instant, that one of his generals had defeated the Illyrians, and his wife Olympias was brought to bed of a son,—the celebrated Alexander.

Horse-racing has a high beneficial tendency in improving the breed of horses in every country; for it is beyond a doubt, that to turf sports we owe the general superiority of the horses of this kingdom over those of our continental neighbours; a circumstance of vast importance in war, and of no little consequence in commercial enterprize.

The Romans acquired the art of horsemanship from the Grecians; and they cultivated it with such zeal and assiduity, that they soon rivalled their teachers.

Virgil, an authority we have often before quoted, has shewn as much skill in his precepts for breaking and educating, as he has in the breeding of horses. We could give either Dryden's or Sotheby's poetical translation; but we prefer the simple prose,

as it better conveys the meaning of the poet:—"If thy inclination," says he, "is to war and martial troops, or with thy wheels to skim along the brink of Pisa's Alphæan streams, and drive the flying chariot in Jupiter's grove, the first task of the horse must be to view the fierceness and the arms of warriors, to be patient of the trumpet, and to bear the rumbling of the wheels in their career, and in his stable to hear the rattling bridles; then more and more to rejoice in the soothing applauses of his master, and to love the sound of patting his neck. And these let him hear as soon as weaned from the udder of his dam, and now and then yield his mouth to soft headstalls, when weak and yet trembling, and yet inexperienced from his years. But *three full years* elapsed, *when his fourth summer has arrived*, let him forthwith begin to wheel the ring, and with regular steps to prance; and let him bend the pliant joints of his legs alternately, and *seem to labour*. Then let him dare the winds in swiftness, and through the open plains flying, as loosened from the reins, scarcely print his steps on the surface of the sand. As when boisterous Boreas hath rushed from the Hyperborean regions, and drives along the Scythian storms and dry clouds; then the high fields of corn and waving plains tremble with the first gentle gusts, the tops of the woods rustle, and the lengthened waves press towards the shore: he flies, sweeping in his career at once the fields, at once the seas.

"Such a courser will either run in furious heat around the goals and spacious bounds of the Elean plain*, and drive the flakes of bloody foam from his mouth, or will better bear the Belgic chariots on his pliant neck. Then at last, when they are broken, let their ample bodies grow with fattening mash; for if full fed before they are broken, they will swell their mettle high, and, when seized, refuse to bear the limber whip, and to obey the hard bits."

We may expect to be excused for this translation, even by the most fastidious; for who can help being charmed with the agreeable manner in which the poet lays down his precepts, the justness of his sentiments, and the inexpressible beauty of his descriptions?

He strongly inculcates a doctrine which we particularly recommend,—that the education should be pursued in the same degree as the strength of the body increases; not rigorously enforced at the beginning, but rather adapted to the gradual path

* *Elei campi*, i. e. the plains about Olympia, in the regions of Elis; by which name the whole country between Achaia, Messenia, and Arcadia, was called.

of nature. And if her path be followed, a colt will certainly not become the premature object of admiration—certainly never will be foremost in the race at two years old; for Nature never intended any of her works to be employed in an unfinished or imperfect manner.

Virgil lays particular stress on the period when horses should be "broken." Not until the fourth summer does he recommend their being put into the hands of the "breaker," and then worked very gently at first: his words, indeed, do not apply to work at all; "Sit que laboranti similis." Dr. Trapp translates it thus:—"Let him not really labour by reason of his tender age, but be exercised with '*seeming labour*'".

The proper education of the young animal has a more important influence on the perfection of the horse than is generally imagined; for it is at this period of his life that the foundation is laid either for a good or bad disposition—either for a good or bad constitution.

Man has a strong propensity to charge *Nature* with his foibles, though it is certain that the universal parent, if uncontrolled by the hand of *Art*, produces no caricatures, either in the animal or vegetable world. "The colt is placed on this globe perfect by the hands of the Creator, but he too frequently degenerates under the bad treatment that is pursued."

It appears to be a general rule, that what is to last long should be slowly matured and gradually improved; while every sudden effort, however gigantic, to bring about the speedy execution of a plan calculated to endure for a long period, is doomed to exhibit symptoms of premature decay from its very commencement. Sir Walter Scott, in his last novel, "Count Robert, of Paris," alluding to this subject, says as follows:—"Thus in a beautiful oriental tale, a dervise explains to the sultan how he has reared the magnificent trees among which they walked, by nursing their shoots from the seed; and the prince's pride is damped when he reflects, that these plantations, so simply reared, were gathering new vigour from each returning sun; while his own exhausted cedars, which had been transplanted by one violent effort, were drooping their majestic heads in the valley of Orez."

Aristotle particularly inculcated this tenet:—"That premature training and over-exertion at a tender age were injurious to the constitution." Alexander the Great, who was educated according to his principle, was not allowed to use the more violent exertions of the Gymnasium during early life, considering them injurious to the growth of the body and to the future strength of the adult. In proof of this, he adduces this conclusive fact, that, in the long list of Olympic victors, only two,

or at most three, instances had occurred, in which the same person had proved victor in *youth and manhood.*

We have elsewhere alluded to the subject of early breaking, and attempted then to shew the pernicious consequences produced by the present fashionable method of bringing two-years old colts to the starting-post.

It is a remark of some one (we forget who), that to avoid and to correct error, it is only necessary to be acquainted with the pernicious tendency and to break the slavish fetters of prejudice and custom. Alas! the consequences are daily seen in the degeneracy of our stock of racers: but the supporters of the turf are still bound by the fetters of custom; and while Nature is tortured by their ambition and their avarice, while to supply the demands of their perverse appetites she becomes crippled and disabled, these imperial animals exclaim, "Ye servile creatures! why do ye lament? why vainly try, by cries akin to the voice of human woe, to excite our compassion? Created solely for our use, submit without a murmur to the decrees of heaven, and to our mandates; of us, the heaven-deputed despots of every creature that walks, or creeps, or swims, or flies in air, on earth, or in the waters."

Before we enter into the immediate subject of this paper, it will be necessary to make a few preliminary observations, which may serve as a foundation on which to raise our edifice. To do this, it was our intention briefly to inquire into the nature of the faculties possessed by horses, and then investigate the nature and influence of those means by which it can be actuated, and how they may be best employed for the better perfecting their education; but, fortunately for us, we have been anticipated in the first part of our subject by a writer in THE VETERINARIAN for May last, "*On the intellectual and moral qualities of the inferior animals.*" And as it would be both useless and ridiculous to go over the same ground, we cannot do better than refer the readers of THE VETERINARIAN to the article itself.

It too frequently happens, that on such a subject, which affords a fine field for the display of invention and the activity of the imagination, the mind is apt to wander from the real truth, and fall into the specious path that leads to scepticism and error: but the author of this paper is not one of these; he has shewn himself to be a perfect master of his subject; as one who traces surrounding phenomena up to their great first cause; as one who, in looking through the range of Nature's works,

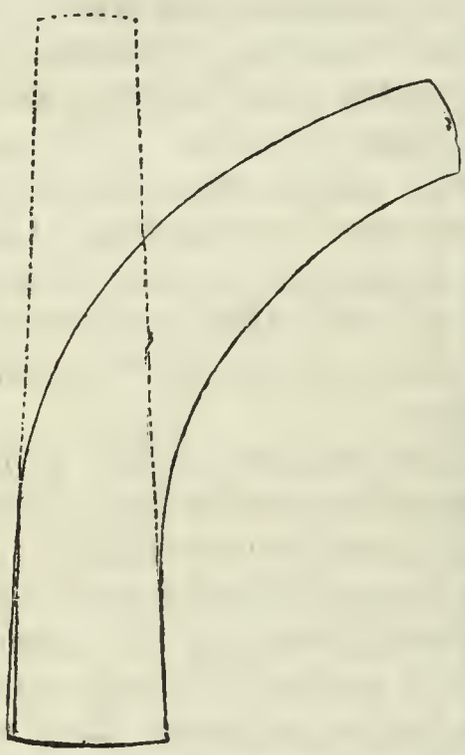
> "Finds tongues in trees, books in the running brooks,
> Sermons in stones, and good in every thing."

[To be continued.]

CASE OF DISLOCATION OF THE CERVICAL VERTEBRÆ.

By Mr. W. C. Spooner, *V.S., Blandford.*

Sometime last summer I was sent for to attend a cart mare, a few miles from this town, that had received an injury in the course of the night. On my arrival, I found that the mare had entangled her head under the manger, between the wall and the post that supported the manger; and, in her attempts to extricate herself, had got her head under her, and dislocated her neck. She presented a very dreadful appearance; her neck was bent in the form of an arch, as represented in the figure, which is supposed to be a bird's-eye view. Her head was hanging down almost to the ground, from which she could only raise it a few inches. On making her walk, she moved round in a circular direction, corresponding to the distorted shape of the neck. The side of the neck that had been rendered convex was much lacerated and injured. Her fever was very great, her pulse being upwards of ninety. On moving her neck in a lateral direction, the fulcrum of motion appeared to be between the fifth and sixth vertebræ, pointing out the seat of injury.



The dotted lines represent the natural, the black lines the distorted shape of the neck.

I conceived that the spinal marrow was extensively injured, and that the case was hopeless; but, as the owner was agreeable, I was willing to try what could be done. I bled her largely from the arms (being unable to do so from either jugular vein), and administered a dose of physic. I then had some deal splints made, and bound them to the neck as well as I could by means of bandages. The lacerations were dressed, and ordered to be kept frequently wetted with cold lotions.

On the second day, the mare appeared much the same: the fever was very high; the physic had operated, but the head, owing to its position, had swollen considerably. The splints were adjusted; cold lotions repeated; a fever ball ordered to be given every six hours; and the swelling of the head relieved by numerous lancet punctures. This treatment was continued.

On the fourth day I still had no expectation of the mare's re-

covery: she had not lain down since the accident, and could not raise her head to the manger, but was able to walk rather straighter.

On the eighth day she appeared better, and was turned into an adjoining field: she managed to eat grass pretty well, and from this time she gradually got better.

In about five or six weeks she could walk straight, and the neck had greatly recovered its natural shape. In the course of a month from this time she was put to work, where she still continues. When I saw her last, the neck was very nearly restored to its former shape.

A CASE OF FRACTURE OF ONE OF THE SESSAMOIDS.

By Mr. John Harris, *Jun., V.S., Preston.*

On the 6th June, 1831, I was called in to a brown horse, belonging to Mr. Turner, coal merchant, of this town. The horse was a strong coach-like animal, and had been used to the cart for some time. He was intended to have run a match at a petty race with another horse of the same description. A few days previously, the parties thought they would give him some preparation, as far as a gallop or two, along with a half-bred mare that was going to run at the same place: he had not gone above a hundred yards before he came down headlong; and on getting up the lad saw that he was very lame: it was with great difficulty he could be led home, a distance of about two miles.

On examination, I found considerable tumefaction of the off fore leg, great pain on attempting to walk, and he went nearly on his fetlock. Upon handling the parts a crepitus was very distinct; but whether arising from effusion or fracture I could not exactly decide, for to the feeling it was posterior to the metacarpal, and head of the large pastern. I had no thought of the sessamoids. I considered the case as hopeless; but the gentleman wished me to attempt some relief. I bled him from the arm, put on a staple shoe, ordered cold lotions and bandages to the leg, and that a physic ball should be administered.

The next day, Monday, I had him bled from the foot, and the lotions and bandages repeated: the swelling was immense.

Tuesday.—Still worse. The weight being thrown upon the fetlock, caused some splinters of bone to work their way through the skin; and, perfectly convinced that it was of no use, I obtained the consent of the parties to have him destroyed.

On examining the leg, I found considerable effusion and extravasation all round it, as high up as the knee; the inner sessamoid was shivered to atoms; some portions of the bone adhering to the ligament, some loose; the outer bone remained entire. My opinion was, that it must either have been caused by a violent blow with the other legs, either before or behind (most probably from behind), or in consequence of the sudden and unusual exertion the ligament was put to.

EXTRACTS FROM MY CASE BOOK.

By Mr. J. Simpson, *V.S., Southampton.*

No. II.

SUPERPURGATION.

On the evening of Saturday, May 26th, I was requested to attend at ————, near Southampton, the residence of J. F., Esq. Upon my arrival, I found one of the carriage horses was to be my patient; and having made some inquiries, it appeared that the animal had been attacked with catarrhal fever, or influenza, on the preceding Wednesday. Mr. F. himself undertook the management of the case at that time, and bled the horse that evening: next morning (I believe) he administered a dose of physic, consisting of eight drachms of Barbadoes aloes, and a number of other ingredients, which I am sorry I cannot enumerate. The horse is still labouring under considerable febrile affection: the mouth is hot and dry; conjunctiva and Schneiderian membrane injected; eyes dull and heavy, and eyelids swollen; pulse forty-two; no appetite, &c.; but as the physic is still operating, I refrain from administering any medicine.

27th, eight A.M.—The physic is now nearly set, and the febrile symptoms are considerably abated; yet still they exist, and are accompanied by excessive prostration of strength. Pulse forty-one; not the slightest inclination for food. ℞ Pulv. digitalis ℈ij, ant. tart. ʒiss, nitre ℥ss; green meat to be offered to him, which, however, he would not touch.

28th.—Violent purging has supervened; liquid fæces are flowing from the animal in great quantities: pulse about forty, and there is no appearance of any great pain, or any particular inflammatory affection: he has not yet tasted food. ℞ Cretæ preparat. ℥ij sol. in aquæ Oj. Remove green meat; offer thick gruel.

Eight P.M.—The purging has not decreased the least: the dulness and prostration of strength are excessive. ℞ Pulv. cretæ preparat. ℥j, pulv. opii ʒj, ext. catechu ʒij, syr. q. s. ut ft. bol. Administer an enema, holding in suspension cretæ preparat. ℥ij.

29*th*.—This morning the purging has a little abated, but there appears great pain and irritation in the intestines; a rumbling noise may be heard; the horse is continually pawing and looking at his flanks. Pulse fifty; mouth hot, and eyes dull and swollen. V. S. ℔s. vii. He was greatly affected by the bleeding, which appeared to afford considerable relief for some hours. Administer enemæ frequently.

30*th*.—No improvement. Fluid fæces still discharged, but in small quantities, and apparently with some pain; great irritation in the intestines, manifested by constant pawing and looking at the flanks; mouth hot, legs and skin warm; pulse forty-six: has not touched food; exceedingly weak. Administer an enema containing ol. olivar. Oj; support strength by drenching with gruel.

31*st*.—Still the same, without any improvement, except that the oleaginous enema gave temporary relief, and induced the discharge of a quantity of highly offensive fæcal matter. Continue the treatment as yesterday.

June 1*st*.—Somewhat easier this morning: the injections have been frequently used, and each time brought away a small quantity of light-coloured fæces, very fœtid; the febrile symptoms have quite disappeared, and the uneasiness has greatly decreased: still there is not the slightest wish for food, and the weakness continues very great. The horse has not lain down since the commencement of his illness. I see no objection against the use of a slight tonic. ℞ Pulv. gent. et zingib. āā ʒij, syr. q. s. mane et vespere.

2*d*.—There does not appear much amendment. Repeat the bolus as before, and continue to administer gruel.

3*d*.—This morning my patient is improved; the uneasiness and irritation have disappeared; he is more lively, and has picked a little sweet hay; but still he is very weak and languid, and greatly "out of sorts:" he grinds his teeth a great deal, and often eats a small quantity of his dirty litter. ℞ Pulv. gent. ʒiij, pulv. zingib. ʒij, spts. æth. nit. ℥j mane nocteque. Still give gruel.

4*th*.—Continues to improve a very little: he is more lively, and has a little appetite; but still the progress is exceedingly slow. Continue the treatment as yesterday.

5*th*.—Greater improvement. Continue as before.

6*th*.—Still improves, and more rapidly than heretofore; has

seemed anxious for some corn, and when led out, he readily ate some fresh grass. Continue the treatment.

From this time the horse slowly but gradually amended, and was soon discharged from my care.

In this case there is nothing so peculiar or edifying as to warrant me in obtruding it upon the public, except that it may serve as a peg whereon to hang a remark or two, appertaining to the practice of gentlemen "*farrying*" (oh! the degrading, tell-tale word!) their own horses. There is no circumstance so galling as this to a young man just entering upon practice, after having prepared himself for the duties thereof by days and nights of honest application and labour: the dominion of the groom, and his consequent airs and self-importance, may from habit be borne with some degree of christian resignation; but when a gentleman—a man of education, versed in the beauties of ancient literature, and deep in the mysteries of Adam Smith—fancies that because he is well acquainted with Greek and Latin, and mathematics, and political economy, he must surely be able to cure the ailments of a horse better than a poor veterinary surgeon, the case is widely altered; and in few other instances does the annoying fact of our small estimation in the country force itself so strongly upon the mind. (Be it understood, that I do not here allude to this, or any other individual instance; for after the horse became my patient he was resigned wholly to my management.) A reformation in this respect must be the work of time; and it must proceed from a conviction on the minds of men, through the evidence of their external senses, that the scientifically educated man—the man whose time and talents have been devoted to the purpose of gaining a fundamental knowledge of his profession, where alone such knowledge can be gained, viz. in the dissecting-room—is, indeed, superior to him whose practice is based on the profession of a score or two of musty, antediluvian "*receipts.*" This conviction can never be generally produced until the veterinary profession has climbed much farther up the steep and rugged path of improvement. There may be, and doubtless there are, many men of sterling talents, whose individual merits have wrought conviction, and done away with this practice so insulting to common sense in their own immediate neighbourhood; but, even in such instances, it is a work of time, and anxiety, and disgust: yet how many young men are there who, quite unprepared for meeting such "disagreeables," are abashed and astonished, and either retire from the contest, or, fearful of offending, speak in such an undecided manner, that all confidence in them is lost, and years may possibly be spent in repairing the blunder of a moment. To such I would

say, "Persevere; and if a circumstance of the kind I have stated should occur to you, give your opinion firmly and respectfully; then, if offence be taken, depend upon it it will be of a temporary nature, and increased confidence will eventually be placed in you."

The epidemic Catarrh, or Influenza, has been, and continues to be, very prevalent here; and in a letter which I recently received from my highly esteemed friend, Mr. Charles May, of Maldon, Essex, I am told the same disease has been very common in his part of the country. I have been quite successful in treatment, by moderate bleeding and the common fever medicine, with the addition of two drachms of aloes; but after all febrile symptoms have disappeared, excessive lassitude and weakness remain. In one gentleman's stable, where six horses are kept, every one had a severe attack; three have quite recovered, and three are still under treatment. I would gladly agitate the question of contagion in this affection; but we as yet know so little of atmospheric influence, that nothing satisfactory would accrue.

ON PERIODICAL OPHTHALMIA.

By Mr. R. Pritchard, *V.S., Wolverhampton.*

In regard to the periodical ophthalmia—or specific, or, if you please, gouty ophthalmia—of the horse, much has been said, many experiments made by men of great talent, yet much difference of opinion on the subject exists among professional men, and no successful mode of treatment is yet discovered. It may be thought presuming in me to make any observations on a disease requiring so much tact and experience, or to offer an opinion; but there can be no crime in saying what one knows to be true on this or any other subject.

The periodical, or I think, more properly, the internal, ophthalmia of the horse has its peculiaries, and decidedly differs from ophthalmia in other animals, and from every species of the disease in the human subject; nevertheless there does not appear so much mystery and obscurity, as to its nature and cause, as has been commonly stated. Professor Coleman considers it a specific disease: he compares it to gout in the human subject, and considers its exciting cause to be the malaria of the stable; thus enveloping the disease in such a cloud of mystery as to nearly extinguish all thoughts of further inquiry among the junior part of the profession.

I do not presume to have equal discernment and talent with our worthy Professor; but I certainly cannot see much analogy between ophthalmia in the horse and gout in the human subject, unless it is in the translation of the disease from one organ to the other, and the hereditary predisposition, the latter of which Professor Coleman, I believe, denies, saying no disease can be called hereditary. It is true, the colt does not come into the world with ophthalmia; but he brings the development, lineament, and outline of structure of his parents; and it is in the peculiarity of structure of the various parts of the body that predisposition to disease exists. It is said to resemble gout in making its attack at night, in disappearing after an uncertain duration, and returning at irregular intervals. But it will be frequently found, should attention be attracted early to the eye, that the organ manifests a degree of irritability for a day or two previous to the strong inflammation announced by the groom on the morning he first discovered anything wrong in the eye. On the first attack of gout, paroxysms of pain and fever occur daily, at noon, for a short time, when it altogether disappears, and the patient experiences nothing more of it for perhaps two or three years: but this is not the case with ophthalmia in the horse, for although the inflammation of the conjunctiva does often rapidly subside, still the disease does not entirely leave the internal structure of the organ, as the partially contracted pupil and projection of the haw more or less over the cornea are sufficient to prove; nor do I believe the horse is ever entirely free from pain so long that light is recognized by the affected eye.

It appears to me, that when an acute inflammation has existed in the more delicate structures of the eye, so much derangement or disorganization is generally produced as to preclude a complete resolution of the internal inflammation; consequently, a predisposition to a return of the inflammation to the acute form ever afterwards exists.

It does occasionally, although not frequently, happen, where the disease has appeared in both eyes, that on the one becoming dark from the formation of cataract, the other does not experience another paroxysm of acute inflammation for several years, or for the remainder of life. A grey half-bred stallion, near to this place, lost one eye at five years old, the other remained free from disease until last year, when he lost it from an acute internal inflammation of that organ; and he is now twelve years old.

The periodical ophthalmia does not commence in the conjunctival membrane, as some have stated: it is an internal inflammation from the first. The retina is evidently affected previous to the

conjunctiva. This is seen by a twinkling of the eye and an alteration in the size of the pupil.

It is my opinion, that inflammation first commences in the iris. The disease does more damage to the iris than to any other part of the organ; notwithstanding, the loss of sight is effected by opacity of the lens, the sequelæ of iritis—probably Nature's resort to abate the inflammation, by exclusion of light from the retina.

If the inflammation commenced first in the conjunctiva lining the lid, proceeding to that covering the sclerotica, and then to that covering the transparent cornea, as stated in the Professor's lectures, I should expect to find on the onset of the disease the pupil and retina for a short time unaffected, although its progress be rapid. If I should accidentally give my horse a cut in the eye with my whip, severe enough to wound the conjunctiva covering the transparent cornea, considerable inflammation rapidly extends to the whole membrane; the tears flow, the lids swell and close (not so much for the purpose of excluding light as to give ease, for the contraction of the levator palpebræ superioris produces pain in this state of the eyelid), but the pupil does not contract, nor is the eye impatient of light.

The inflammation thus produced rarely extends to the internal structure of the organ; on the contrary, it soon subsides on the application of a little tepid water, provided the animal is not inflammatorily disposed: and whether that membrane be inflamed in simple or periodical ophthalmia, the treatment commonly pursued resolves the inflammation of the conjunctiva; the swelling of the lids and flow of tears subside; and the transparent cornea is again restored: in fact, no injury is sustained by that membrane during the whole period of internal ophthalmic disease.

In regard to ophthalmia being hereditary, I think there can be no question; at least, a vascular and nervous peculiarity in the structure of the organ, favourable to acute inflammation, appears to descend from the parents to the progeny. I know of many instances strongly in favour of this opinion. A farmer named Goodwin, near Walsall, in this county, bred four horses from a blind cart-mare, and they all were blind by six years old. There was no want of a free circulation of air in Mr. Goodwin's stables; and I think bad food had no share in the cause, as Mr. G. appeared fond of horses, and paid them great attention.

Thomas Bate, Esq. Penn, near Wolverhampton, has at this time a two-year-old cart colt by a blind horse in his neighbourhood. This colt has had an attack of ophthalmia while at grass: in fact, he has never been housed.

A thorough-bred stallion (blind), two miles from this place, is sire

to many young horses in this neighbourhood that have suffered from ophthalmia: yet many horses go blind, no doubt, that do not inherit the disease from their parents. It is by no means of unfrequent occurrence to see horses' eyes attacked with ophthalmia by metastasis of inflammation from some other part of the body.

CASE I.

Three years ago I was requested to fire the fore legs of a well-bred horse, eight years old, colour brown, with black legs, tanned muzzle, and as fine a hazel eye as most horses could shew, the property of T. S. Hellier, Esq., Woodhouse, four miles from hence. He had just finished the hunting season. I was of opinion the horse was not in a fit state for the operation; but the groom informed the master the horse had taken physic, and was sure to do well; consequently Mr. H. would have him operated upon. The firing took considerable effect; this passed off, and the legs were very much benefitted by the operation. During the time he was tied up in an excellent and well-ventilated loose box, he had an attack of inflammation of the lungs, which soon subsided. At the end of five weeks from the time of firing he was turned into a paddock by day, and housed at night. He had not been out more than a week, when ophthalmia appeared in both eyes: the swelling of the lids was not great, nor the flow of tears copious; but the internal inflammation was intense: the pupil in one eye was completely closed; the iris in both eyes soon lost its beautiful colour; the aqueous humour became turbid, and the work of destruction went on as rapidly as I ever witnessed: he partially recovered his sight, but on a second paroxysm speedily went quite blind.

CASE II.

Mr. Jorden of Penn, near Wolverhampton, had a thorough-bred entire horse, aged, attacked with pneumonia, from which it was thought he would not recover. The inflammation terminated in resolution; and in a week ophthalmia appeared in both eyes, and he went blind.

CASE III.

Mr. Jackson, of the Three Tuns Inn, in this town, had a chestnut cob horse, five years old, with two wall eyes, suffering from a slight inflammation of the lungs, from which he soon got better; when ophthalmia attacked his eyes, and after several paroxysms, first in one eye and then in the other, he went blind.

CASE IV.

A thorough-bred stallion, the property of James Russell, Esq., Bescot Hall, six miles from this, at the end of the racing season,

1830, was castrated by an itinerant gelder, without any preparation of the horse for such an operation; and after a good deal of frizzling with the iron, and scalding from ointment melted inside the scrotum with the same instrument, he was in a fair way to finish his last race; but he recovered, and ophthalmia appeared in his eyes,—acute inflammation attacking first one organ and then the other, and which ultimately destroyed them.

I have frequently witnessed ophthalmia supervene upon phlegmonous inflammation of the hind extremities, and upon grease. I believe metastasis of inflammation to be a more frequent source of ophthalmia in the horse than has been generally considered.

Mr. J. Castley, veterinary surgeon, 12th Royal Lancers, informs us, that he has frequently observed ophthalmia occur after long-continued attacks of diabetes; and he relates one particular case in which inflammation alternately occurred in the eyes and the hind leg. As it appeared in the one, it disappeared in the other: and, as Mr. Castley observes, it is probable any great constitutional disturbance may give rise to ophthalmia. When the system has acquired an inflammatory diathesis, the various exciting causes of disease are in full power; and we are not yet sufficiently intelligent to exemplify the principle by which the eye in this instance, the brain in the next, or the lungs or the bowels in others, become the seat of acute inflammation.

The horse is more subject to ophthalmia, and all inflammatory diseases, from five to six years old than any other period; undoubtedly from the fulness of habit or plethoric state of the system to which the animal's arrival at maturity subjects him. Four-year-olds are very common subjects of internal ophthalmia; and it is not improbable that changing and cutting of the teeth, particularly when the horse is stabled and feeding on hard meat, may occasionally produce it.

Professor Coleman lays much stress on a poisonous gas generated in the stable by a combination of the exhalation from the dung, urine, &c., with the expired air and perspirable vapour of the horse, as producing ophthalmia, and, in fact, most other diseases: but much as I respect the talent and genius of the Professor, I must confess my disbelief in this malaria. There is but little necessity to commune with this mystical agency, to discover sufficient exciting causes of disease in our domesticated horses, when we consider the change of temperature to which they are exposed, consequent on keeping our stables much above the temperature of the out-door atmosphere—the bad hay and corn, the irregular and improper feeding, the unequal exertion, and I may say ill-treatment they occasionally experience.

"In proof of the stable malaria," says the Professor, "it would be a phenomenon to see ophthalmia in a horse that had been kept wholly at grass; and it would be equally rare to find a horse, five or six years old, that had been so kept, and whose services had been exacted in the usual way, that had not had ophthalmia." Notwithstanding this assertion, however, we do see it occur at grass too often to be a phenomenon, or require confinement in a stable for its production. It is frequently seen in the pony employed by the farmer, and who knows but little of the comforts of the stable; the field in which to cater for himself being his common lot. The disease does not appear so frequently in the pony as in our other horses, nor in the mule or the ass so frequently as in the pony.

It has been said, that the mule and ass are not subject to it; but I can bear testimony to the contrary, having seen several instances in both these animals; and Mr. Percivall, in his work, vol. iii, states, that the mules belonging to the army in the Peninsula, were quite as often the subjects of diseased eyes as the horses. Yet, it is my opinion, that they are not so much subject to it as horses in this country; nor do I conceive any stable confinement would render them so. The ass is an animal that does not possess an equal degree of nervous sensibility with the horse, consequently is less liable to disease.

In the treatment of this disease it may be expected that I have some novel and successful mode of combating it—a specific to offer, by which the present inflammation may not only be removed, but the eye secured from a future attack—"the gouty disease completely eradicated from the constitution;" but this specific remedy I fear is at a most awful distance.

I consider the ophthalmia of the horse to be iritis. Let the proximate cause be what it may, it is inflammation of the iris in the first instance. It is from the vessels of the iris effusion of a coloured fluid takes place, rendering the aqueous humour turbid. From these vessels lymph is effused upon the margin of the pupil, and corpora nigra (I consider the transparent cornea performs no share in the office of secretion by which the aqueous humour is formed: the transparent cornea receives blood for its own nourishment only; it would be incompatible with the function of the transparent cornea, whose office is to admit the rays of light, to perform the office of secretion); the inflammation extends to the hyaloid membrane and capsule of the lens; but, unless the inflammation be very acute, the lens is not affected by the first paroxysm.

CASE.

Mr. Jos. Ash, of this town, had a bay mare, half bred, seven years old, attacked with ophthalmia six weeks ago, in the left eye. The pupil was much contracted, with great impatience of light. There was little abatement of the symptoms for fourteen days. There is at this time but little difference in the size of the pupils, and the lens is equally clear. This mare has been at grass from the commencement of last summer through the whole of the winter, and was in the field when inflammation appeared in the eye. Mr. Ash having been ill, the mare has been living an idle life. He bred this mare, and informs me no mare had better eyes than her dam, or the horse that she was by.

The causes of this attack of ophthalmia I shall leave without comment.

The inflammation in nowise differs from common inflammation in other structures, and the results have no specific difference from the sequelæ of inflammation in other vascular structures; and there appears nothing very astonishing in the fact that inflammation should defy our remedial exertions in so vascular a structure as the iris and tunica choroides: yet I believe that much may be done, if not many eyes saved, by diligent perseverance on the part of the practitioner. I cannot boast of having cured a case of ophthalmia, but I have had the very great pleasure of witnessing an absence of acute inflammation following the first paroxysm for twelve months.

By way of explanation, we will suppose the practitioner called to a case of internal ophthalmia on its first attack. He bleeds, gives a laxative, orders fomentations and lotions to the eye or eyes, exclusion from light, clothing, and a mash diet. In the course of a few days the tumefaction of the lids and flow of tears subside; the eye becomes less impatient of light; the nebula clears from the cornea; and the patient being so far relieved, the practitioner discontinues his treatment, under the impression of having effected all within the scope of his art, and quietly awaits another paroxysm; "for," says he, "blind the horse must be, and all I can do is to palliate urgent symptoms."

This, too, is understood to be the nature of the malady by the owner of the horse; and being thus in possession of the ultimatum of the case, he determines that the animal shall resume his ordinary employment, and his usual mode of living, and all precautions cease. What may be rationally expected but a return, ere long, of acute inflammation? Should not the bleedings and aperient medicine, the antiphlogistic regimen, fomentations, exclusion from light, &c. be persevered in until the pupil corresponds with that of the unaffected eye? or, if both eyes are diseased, until the pupils accommodate themselves to the degree of

light to which they are exposed?—until all impatience of light has vanished, and the organs have resumed an appearance free from disease.

I say, that until we have effected this, our treatment with every necessary precaution should be strictly persevered in; and if the proprietor of our patient does not chuse to afford us every opportunity, and strictly abide by the instructions we give, he cannot attach any blame to the practitioner, or question his ability. If we are not able at the present to accomplish this desideratum, we ultimately shall be. Whenever a discovery is made in the works of Nature, we observe no complication in her mechanism—no mysterious principle in her laws and economy. It is unworthy the name of science to give a disease we cannot at present control, the appellation specific, gouty, &c.; it can only serve to sheathe our ignorance as to its successful mode of treatment, and to stifle the inquiry of our employers, but can never shield our consciences from unpleasing reflection.

Now that I am communicating with The Veterinarian, I take this opportunity to return Mr. Karkeek my acknowledgments for his reply to my letter published in the February Number; and beg leave to inform Mr. Karkeek, that *if he will take the trouble to read that letter over again,* he perhaps may discover that I did not there state the case of the chestnut mare to be one of glanders. Whether or not I made a mistake in the selection of that case as one shewing the efficacy of cantharides, Mr. Karkeek may decide if he chooses. Mr. K. gives me credit for making a great deal out of nothing; I wish I could say as much in his favour, from the perusal of those laborious communications on the origin of the horse, breeding, &c., in which so much classical set-phrase loquacity is displayed.

> Some for renown on scraps of learning dote,
> And think they grow immortal as they quote. Young.

But out of a great deal, Mr. Karkeek, you have made nothing. I have no future intention to occupy the pages of The Veterinarian with unfriendly expressions and unprofitable scribble, consequently Mr. K. will please to excuse me in future.

NEW THEORY ON THE PRODUCTION OF ANIMAL HEAT DURING RESPIRATION.

By Mr. James Turner. *V. S.*

The object of these few lines is a speculative attempt, to shew that in ordinary respiration *caloric,* or the principle of heat,

instead of being conveyed to the blood in the lungs in a concealed or latent form, as generally imagined, *is actually evolved from the cells of the lungs themselves in a sensible form,* and immediately communicated to the blood circulating in the lungs as palpable heat; and that the great work of arterialization of the blood is effected by a very simple process, and purely on mechanical principles.

I regard each minute air-cell of the lungs as a separate furnace; the common atmospheric air inhaled as the fuel; and that, in consequence of a wise provision of nature in the construction of the respiratory apparatus, the inhaled air is *opposed in its ejection* from the cells, until it has undergone a certain degree of *compression* in the act of expiration, which forces it to leave a part of the caloric that it contains.

A reference to the internal structure of the respiratory organs will exhibit every facility to the free and rapid admission of the external air, whilst the same organization evidently allows of its return; but, I contend that it presents *numerous obstacles* to its rapid ejection in ordinary breathing; and it appears to me to be just such a piece of mechanism as a mechanic would devise for the effectual *compression of atmospheric air.*

The inflated lungs being comprised of myriads of minute cells or bladders in a state of distention, each cell, having a separate communication with the bronchiæ by a neck of inconceivable smallness, its calibre being impervious to any thing of greater density than air, has to encounter suddenly, in the effort of expiration, the force of combined impressions: first, the contraction of the cell itself, in virtue of its own inherent elasticity; secondly, the powerful contraction of the diaphragm aided by the abdominal and intercostal muscles, all conspiring at the same instant to reduce the area of the chest in every direction, constitute a joint pressure on the distended air-bladders as equal to *three,* whilst the avenues through which the air has to escape are in conjunction only as equal to *one;* consequently as the air-cells do not rupture when the sides of the chest suddenly approximate, the contained air necessarily undergoes that degree of *compression* or *condensation* which causes a certain quantity of caloric to escape from it in a sensible form.

How far this process of compressed atmospheric air within the lungs may afford a vehicle for the transmission of electric fluid into the blood and nervous system, I shall not pretend, at present, to enlarge upon.

No. 311, Regent Street, June 14th, 1832.

INFLAMMATION.

By Mr. Simpson, *V. S., Southampton.*

Scattered through the pages of The Veterinarian are various opinions and observations upon Inflammation, but I believe it has not yet (in the pages of that journal) been considered in that comprehensive light which its paramount consequence demands. It is a subject of the highest and most indispensable importance; it is a fundamental principle in the study of our profession, and upon a sound knowledge of its nature and laws materially depends the success of our practice. In all the catalogue of diseases contained in our nosology, this process, in some modification, is concerned, either as a cause or symptom, or, perhaps, as a mode of cure; and, in the surgical department of science, the skill evinced in an operation is oftentimes neutralized and rendered futile by the want of a proper physiological view of the phenomena attendant upon inflammation manifested in the after-treatment. In the absence of other and more enlightened scribes, it is my intention to publish in The Veterinarian a few papers on this engrossing topic; not that I have any new theory to promulgate, but from a hope that the veterinary student may be induced to give it a greater, a much greater share of his consideration than he has hitherto done. His time, I can assure him, will not be unprofitably spent; for when he has once obtained a right idea of the principles and consequences of inflammation, his conception of the nature and character of disease will be, to a great extent, rendered clear and simple; and in many a case, wherein he would otherwise have been working in the dark, his way will be distinctly marked out for him. Let me beg of him, therefore, to bestow his attention upon this subject—to study it minutely—to investigate its phenomena—to make himself thoroughly acquainted with its laws, its nature, and its effects—and not to rest satisfied until he understands (as far as our present acquaintance with the subject will permit) its various important characteristics: for I again tell him that this knowledge must form the foundation upon which to build his future practice, and that it will hereafter guide him through many a difficulty, and spare him many an hour of painful and anxious thought, and, perhaps, many a pang of reproaching conscience.

Definition, Symptoms, &c.

In order to form a proper acquaintance with our subject, it is necessary to give a concise statement or definition to the term,

Inflammation; and upon that statement to ground our remarks. There has been a strange and wide discrepance of opinion amongst authors who have attempted to define the word; some shaping their course under the idea that the capillary vessels are in a state of *increased* action; others, that they are in a state of *decreased* action: some, that there is an obstruction in their tubes in consequence of the viscidity of the blood; others, again, that they are in a state of spasm; &c. &c. It is not for me to pretend to set the opposed parties right, but, in order to embody my thoughts upon the point, I must state that definition which most clearly conveys my idea of what inflammation really is. I would say, then, that *inflammation is an increased and perverted action of the arterial capillary system, characterized by heat, redness, swelling, pain, and a disposition in the part to alter its secretions.* This is confined to inflammation abstractedly considered, as it exists locally; but, independent of the characteristics I have enumerated, it is attended by a sympathetic derangement of the sanguiferous, nervous, digestive, and secretory systems, constituting in the aggregate symptomatic or sympathetic inflammation, of which I shall speak hereafter, though my observations will be chiefly confined to inflammation as a topical affection. For inflammation really to exist, it is necessary that the first four symptoms I have mentioned be combined, because, taken separately, they offer no proof of its existence whatever; thus, if a part be held near the fire, heat is produced: in the human subject redness occurs in blushing, and may readily be demonstrated by mechanical and chemical means: we have swelling in anasarca, and pain is a consequence of a variety of affections, but in none of these instances does inflammation necessarily exist; in fact, to constitute inflammation there must be a combination of heat, redness, swelling, and pain. This is required in very slight cases, but, when the affection proceeds, we shall soon have an addition to the symptoms by a disposition in the part to alter its secretions; or probably I should be more correct in saying, that this disposition has its existence at the very commencement—that it is essential to the very being of inflammation, but that some time must elapse before its power can be felt, or the habituated action of the secretory vessels changed. I am here speaking of the affection in the abstract; but there is such a variety in the process dependent upon the structure of the organ in which it exists, and the nature and cause of the process itself, that no general description can be applied to all cases. I will, therefore, select an instance of common occurrence, and point out the phenomena attending it as a general type of that disturbance which is designated by the term inflammation.

Suppose, then, that an animal receives an injury from a contusion, a kick, or a wound in some muscular part; at first, probably, it is of slight consequence, and the horse continues his work as usual, but by and by stiffness and lameness (if it be on an extremity) ensue; the disturbance increases, and he is incapable of continuing in the performance of his duty. In this stage of the affection we shall find four of the symptoms I have enumerated, viz.—heat, redness, swelling, and pain. Before we proceed further, let us inquire into these symptoms, chiefly as affording us an elucidation and *proof* of that which I take to be primarily and essentially necessary for the existence of an inflammatory state, viz. an *increased* action of the arterial capillaries.

In the first place, then, we find *heat*—heat greater than in a state of health, presuming, as I have done, that the inflammation is an external one, i. e. that its seat is not in the contents of any of the cavities of the body. Do not let me be understood to mean that the temperature of a part *under local inflammatory action* ever rises above the natural temperature of the blood in other parts, because I do not believe such to be the case. Mr. Hunter was the first who denied the hitherto received opinion of an increased heat in deep-seated or internal inflammation; and this idea, like all others of that truly great man, was founded upon direct experiment. He made an incision into the gluteal muscles of an ass, two inches deep, and ascertained the temperature of the wound to be 100° F.; into the cavity he introduced a tin canula, one inch and a half long, having first placed at the bottom a piece of wood, in order to prevent union of the sides: next morning the plug of wood was taken out, and the thermometer introduced, when the mercury again rose to 100°, as it also did when introduced into the vagina of the same animal. The temperature was ascertained daily for about a week, during which time the inflammation was kept up, and was found to vary from 99° to 101°, but it never exceeded that of the internal parts of the body. Other experiments were made with precisely similar results. Thus we see that the heat of a part labouring under inflammation never exceeds that of the blood, yet, when any external portion of the body is so affected, the heat of that portion is increased several degrees. How are we to account for this? It admits of very ready explanation by referring to the definition with which I set out—an *increased* action of the arterial capillaries; but I fancy the supporters of a contrary doctrine would be puzzled to bring any physiological principle so to bear as to explain this most general symptom of inflammation: if their theories were correct, we should decidedly have the very opposite result, viz. a *decreased* heat; but I will endeavour to set this before

my readers in a clearer point of view. The temperature of any individual part of the body is governed and modified by the quantity of blood circulating within its vessels: whence that blood receives its caloric, and how the equilibrium is sustained, is quite a distinct affair, involving the oft-mooted question of animal heat: with that subject it is not our present intent to deal, suffice it to know that the heat of a part of the animal frame depends upon the quantity of arterial blood contained within it, and the degree of rapidity with which that blood circulates. Now I have said that inflammation is an increased action of the arterial capillary system—that under this affection these minute tubes contract more forcibly than in a state of health, and that, in consequence of this more forcible contraction, their elastic power is exerted with increased force in their dilatation, therefore not only their action but their capacity likewise is magnified. How does this operate in producing a greater determination of blood? *Imprimis*, the powerful contraction of the muscular coat is followed by a corresponding reaction in the elastic coat, producing a greater dilatation of, and a consequent greater capacity in, the tube: in the progress of this dilatation an attempt is made to form a vacuum; but, in obedience to an established law in natural philosophy, the blood from the supplying trunks rushes forward to fill up the intended vacuum. The same process is then repeated; there is the same powerful contraction, the same consequent increased dilatation, and the same flow of blood; thus, not only the capillaries, but the arterial trunks also, after a time, perform a greater degree of labour than in a state of health: this is plainly manifested to us by the powerful throbbing of the metacarpal artery, for instance, in inflammatory diseases of the foot. As an inevitable consequence of this, an increased quantity of blood circulates through any portion of the body when in an inflamed state, giving off an extra portion of caloric in a given space, and therefore imparting to us a sensation of increased heat. This symptom is invaluable to us as veterinary surgeons, as having to do with patients that cannot speak to us, and point out the seat of pain, and whose bodies have got a pilous covering, preventing us from availing ourselves of another important character of inflammation, viz. redness. How many cases of lameness have we brought to us, without any visible external sign by which we can know the seat of the affection, or be able to form an opinion as to its nature, or its extent; but by the aid of the heat which is present, we are made acquainted with these circumstances, and thus enabled to direct our remedial means and appliances to the proper quarter. The veterinary

student cannot pay too much attention to this subject; he will find his account hereafter in the credit which a little tact exercised upon this point will obtain for him. Professor Coleman, when lecturing upon inflammation, is, I believe, in the habit of explaining his ideas, by saying the arterial trunk is acting as equal to two, whilst the corresponding capillaries are acting as only equal to one, and consequently these minute tubes receive more blood than they have the power to dispose of; congestion takes place therefore, and inflammation is established. As a proof of the validity of his doctrine, that the artery itself, and not the capillaries, is the primary seat of the disease, he states, that if he were to take a hammer, and bruise his finger, the throbbing pulsation would not take place at the part where the contusion was inflicted, but in the supplying artery. With all respect for the high talents of the Professor, I venture plainly and openly to pronounce this reasoning (to use his own words) "shallow and illogical:" the position is altogether untenable, and the theory will not bear the test of physiological inquiry, neither can it be supported by any acknowledged principle in medical science. Its fallacy is so palpable, that I will not intrude myself upon the time of my readers by entering into a refutation; but will merely hint, that it appears somewhat paradoxical that the really gifted Professor should apply his remedies to that part which exhibits the prominent symptoms of inflammation, when he does not, in fact, believe it to be the seat of the affection.

The symptom of which I have now to speak is *redness*, and sorry I am that we are so seldom able to avail ourselves of its aid in our diagnosis; not on account of its rare occurrence (for it is an essential character of inflammation), but because it is most frequently hidden from our view by the covering of hair which Nature has bestowed upon our patients; nevertheless, there are cases where it is almost our only guide, as in inflammation of some of the mucous surfaces, &c. This redness is of a bright scarlet hue, exactly as might be looked for in a part possessing an extra and constant supply of arterial blood; it is most intense at that point where the inflammatory process is at its greatest height, gradually decreasing and being shaded off into the surrounding sound parts. I need no other proof than the simple fact, that in inflammation there is an increased redness—*bright, arterial* redness, to overturn in my mind all the theories of congestion, spasm, debility, &c. &c. I cannot conceive it possible for this symptom to be manifest under any state of the capillary vessels, in which either a smaller quantity of blood is sent to them, or a larger quantity sent but delayed within their

cavities. The idea is altogether irreconcilable to the known and established laws of physiology; and I am confident that a very little consideration will explain this to every unbiassed mind. But let us bestow a few moments upon this point; and first I will inquire what would be the consequence if congestion were the essence of inflammation, or if the capillaries were in such a debilitated or spasmodic state, that they could not propel forward the blood which they received from the supplying trunks? The merest tyro knows there is a great difference between arterial and venous blood: there is a difference in their character and properties, and, what is more to our present purpose, there is a very perceptible difference in their colour, the former being a bright scarlet, and the latter a dark red, approaching to black. Of course the blood passes through the arteries before it enters the veins, and consequently first possesses the arterial, and afterwards assumes the venous peculiarities. The immediate cause and means of this change has been the subject of various speculative theories, which it is needless for me to particularize; but I will mention a circumstance or two connected with and influencing it. Arterial or red blood becomes venous or black with an intensity in an inverse ratio to the celerity of circulation; tardiness of motion is, therefore, highly conducive to the change, and perfect rest still more so. We have evidence of this, by isolating a quantity of blood in a living vessel, by means of ligatures applied round it; but a much more familiar and demonstrable illustration is afforded by placing a bandage tightly round our own arm: we shall then readily perceive the gradual yet speedy change from red to almost black, exhibited by that portion of the extremity most remote from the heart: this change is occasioned by the detention of the blood in the vessels of the part. Again, in many cases of pneumonia, wherein we have an oppressed pulse—wherein the artery is labouring in vain to force on the column of blood which it has received—if we resort to venesection, we find the fluid much darker coloured than under ordinary circumstances; but by and by, when the oppressed vessel has been relieved by the abstraction of a portion of its contents, and is thence enabled to act with necessary vigour, and accelerate the flow of its blood, the blackness which we at first noticed diminishes, and gives place to a brighter colour. I am fully aware, that in cases of pneumonia the blackness may be partly attributed to the imperfect oxygenation which the blood undergoes in the engorged lungs; yet it is evidently also influenced by the retarded progress through the vessels. Now, if the capillaries of an inflamed part were in a congested condition—if their coats were distended to such a

degree, that the elastic principle was destroyed, and they could not contract upon and propel the fluid contained within their cavities, should we have increased redness? Should we have increased heat? Should we have the natural average degree of heat? No! What, then, should we have? Why, instead of redness, we should have a livid, black colour, betokening gangrene, of which I shall have more to say when I arrive at the terminations of inflammation; and instead of increased heat, we should have a diminished temperature. On the other hand, it is self-evident, that an increased quantity of blood, not only existing in but circulating through the capillaries, must be productive of increased heat and increased redness. The intensity of this symptom is also much influenced by the enlarged capacity of the seriferous arteries permitting the red globules to enter their tubes. We have daily evidences of this in inflammations of the mucous coat of the eye. In a healthy state, that portion of it covering the cornea is perfectly pellucid: not a vessel can be discerned on its surface; but under inflammation we distinctly see the minute arteries traversing it in all directions, and filled with red blood. We also have anatomical proof of this fact afforded us by Mr. Hunter: "I froze," says he, "the ear of a rabbit, and thawed it again: this occasions considerable inflammation, and increased heat and thickening of the parts. This rabbit was killed when the ear was in the height of inflammation; and the head being injected, the two ears were removed and dried. The uninflamed ear dried clear and transparent—the vessels were distinctly seen ramifying through its substance; but the inflamed ear dried thicker and more opaque, and its arteries were considerably larger, and more numerous." It has likewise been supposed (and the supposition has received support from high authority), that the redness in inflammation is in part to be attributed to the formation of new vessels. On this point I am somewhat sceptical. When coagulable matter is thrown out between two inflamed surfaces, undoubtedly it does speedily become organized; and in abscesses, the coating of lymph which lines the cyst also receives new vessels, else how could pus continue to be secreted? Yet we have no proof, anatomical or otherwise, of their formation in the tumour of a simple phlegmonous inflammation. I know the celerity and efficacy of Nature's operations; but in many acute inflammations the maximum degree of redness comes on so very rapidly, that I much doubt the generation of new vessels. Moreover than that, it appears to me, that if such were the case, the redness would be more permanent; and that it may be produced without such addition, is evident from the fleeting act of blushing. This

is not a question of much practical importance, therefore I need not pursue it further.

The *swelling* attendant upon inflammation is referrible to three circumstances: First, the increased capacity of the vessels themselves, and the consequent increased quantity of blood contained within them. This of itself can have but very little effect in producing the great swelling we sometimes witness. Secondly, the deposition of serum, or coagulable lymph, into the surrounding cellular membrane. And thirdly, the cessation, to a certain extent, of the function of absorption. The chief agent, however, I apprehend, is the deposition of lymph, or probably of the proper secretion of the vessels at first; for their natural action is decidedly increased at the commencement of the affection, although the controlling influence, by means of which we see each individual tube labouring at its own individual function, and producing in the aggregate such exquisite beauty and regulation, is lost, and a chaotic tumour is the result.

The sensation of *pain*, as a symptom of inflammation, may in a great measure be assigned to the pressure upon the sentient nerves, produced by the distended vessels and effused matter. But this is not the only cause; for I think we may attribute it, in a considerable degree, to the communication of the excitement of the ganglial system of nerves to the sensitive, by means of their free anastomoses. In the human subject, the pain has been noticed to be more intense during the diastole of the arteries. I shall, however, have more to say upon this point when I come to speak of the causes of inflammation.

Before I dismiss that part of my subject bearing upon the assertion of an *increased* action of the capillaries, I must briefly mention a few facts, as further confirmatory of that theory; and in so doing I may remark, that the more I bestow consideration on those very simple facts, the more am I astonished that the subject of inflammation has been shrouded in so much mystery, and has given rise to such endless disputes; for laying aside altogether the satisfactory arguments which may be adduced from the first two symptoms, there are other circumstances, daily placed before our eyes, which offer equally incontestable proofs of the perfectly baseless notions of congestion, debility, spasm, &c. &c. The first fact I shall adduce is, that *twice as much blood flows from a wound in an inflamed part, in a given time, as from a similar wound in a healthy part.* To elucidate this I will select a familiar example: Suppose a horse affected with inflammation of the laminæ in one foot only; from that foot we can obtain twice as much blood as from the sound foot in the same space of time; i. e. the circulation in one foot is twice as vigorous as

in the other: the quantity of blood passing through the vessels of one foot is twice as great as in the other. I may, perhaps, be told, that this fact tends to establish the theory of congestion—that when an egress is afforded to the blood, the distended vessels are enabled to contract on their contents and force them forward; but how will the supporters of that doctrine get over the fact, that *the blood which flows from the inflamed foot is much brighter in colour than that from the opposite foot?* Could this possibly have been the case under any other state of the parts than an increased circulatory action? A knowledge of the physiology of the blood tells us, no! Detention of the fluid, by whatever cause produced, would have had an opposite effect; but this is too obvious to the youngest student for me to dilate upon it here. Again, *the venous trunk, conveying the blood from an inflamed organ to the centre of circulation, is much more fully distended than its fellow on the opposite side, and, like the affected part itself, will yield twice as much, almost of an arterial character.* Here is proof upon proof, so satisfactory that I am sure any remarks of mine would be a mere waste of time; I shall, therefore, pass on to the consideration of another part of my subject, viz.

The *perverted* action of the capillaries, manifested by *a disposition in the part to alter its secretions.* In all the definitions of inflammation which I have heard, this peculiarity has been omitted; but I am inclined to look upon it as a circumstance of some importance—as absolutely necessary to the formation of a just and accurate notion of the nature of the affection. Inflammation is not simply an increased, but likewise a *perverted* action of the vessels; it is not merely an alteration in the degree, but likewise in the *kind* of action. In the parotid glands, during mastication, we have an increased action of the vessels—a greater quantity of blood is sent to the part, and an infinitely greater function is performed; yet this bears no resemblance to inflammation. Again, in the uterus, after impregnation, an increased quantity of blood is distributed to the organ, an increased action takes place, and an increased performance of function is the result; but there is nothing like inflammation—there is an alteration in degree, but not in *kind.* I therefore take it, that inflammation is essentially a *perverted,* a *morbid* action of the capillaries, and that it is not simply "an increase of the vital properties of the part it affects." In slight cases this perverted action takes place to so trifling an extent that its effects are scarcely noticed; yet I can conceive, that in every case it not only exists, but is the very basis of the affection. Let us take a very common example: Suppose that the process termed inflammation occurs in the cartilago-ligamentous substance uniting the ossa metacarpi;

is there merely an increase of the powers of life? Do the nutrient vessels continue to perform their healthy functions, but in a more vigorous manner? Do they still secrete the proper elastic uniting substance? No; they have received an altered stimulus from the organic nerves, exciting them to the performance of an *altered* function, and therefore it is that bone is secreted instead of the natural fibrous connecting medium, and we have splent. In more vascular parts, pus is the product of the altered action: witness the change from mucus to pus in the Schneiderian membrane, the formation of abscesses, &c. In inflammatory attacks of the glands we have further confirmation that it is not merely an increase of vital properties, for in such cases we often find the secretion nearly stopped; in inflammation of the kidneys, for example, we notice the gradual abatement of the flow of urine until at length it is nearly suppressed, and mingled with blood and pus. I would select the kidneys to illustrate still more plainly the difference between inflammation and a merely increased action:—we administer a combination of certain drugs, called diuretics, which, by some hitherto unexplained modus, stimulate the secerning vessels of the kidneys to an increased action; the consequence is, an extra performance of their fuuction —an extra secretion of urine; but let these vessels add to this simply increased action the *perverted* action of inflammation, and a different train of results soon follows. If we recur to the mucus coat of the bladder, we notice the same phenomena; in a healthy state its vessels pour out a quantity of mucus to sheathe it from the irritating qualities of the urine; but in an inflamed state this fluid is changed to another, incapable of such office; hence the great irritability, and constant efforts to discharge the contents. I might multiply these examples *ad infinitum;* but I hope I have already said enough to shew, that *in inflammation there is a perverted action of the capillary vessels.*

In my next paper I shall proceed to consider the terminations of inflammation.

June 16, 1832.

TWO CASES OF SUCCESSFUL DIVISION OF THE FLEXOR TENDONS OF THE FOOT.

By Mr. W. Henderson, *V. S., Edinburgh.*

In the year 1824, when out at the late Earl of Morton's, seeing one of his lordship's horses, under treatment for diseased vein, I was informed by the man who supplied the kennel with horse-

flesh, that he had purchased a horse to kill for the hounds, and that he was a good horse in every respect, except that he had a crooked near fore leg; and having heard from one of his neighbours, that he had seen a horse in a similar state operated upon, after which the animal was restored to a state of usefulness, he expressed a very anxious wish that I should examine him, to see if he was a fit subject for the operation. The horse was led out; when I found the flexor tendons much contracted, and the anterior part of the foot worn very thin, from his having gone a considerable time entirely on the toe; but although the frog had not touched the ground for years, I do not recollect ever seeing a wider foot at the heels. The horse was thrown; and I then proceeded to operate, by making an incision, about two inches in length, at the posterior part of the flexor tendons, a little below the insertion of the *supporting ligament* of the perforans tendon, or about one inch below the general seat of sprains; and, after clearing away the cellular membrane, taking care not to injure the important bloodvessels or nerves, I grasped the two tendons firmly with the finger and thumb, and at one cut with the probe-pointed bistoury, got them very easily divided; and, as no considerable adhesions had formed, I returned the leg back to its original position without difficulty, applied a little lint to the wound, and bound all up with a linen bandage. When the horse was allowed to get up, which he did with the greatest ease, he had about a mile and a half to walk after the operation, which he did in a very superior manner to what he had done for some time.

The parts were occasionally dressed with a little lint dipped in linamentum terebinth.; and in the course of six weeks it healed kindly. He was put to cart-work on the road, such as leading stones out of a quarry, &c., at which he continued for twelve months. The owner about the end of that time sold him to the Union Canal Company; and I understand from Mr. Brice, of Rutho, who sold him, that he worked in the service of the Company for four or five years, during which time the leg that was operated on kept quite right.

The second case, which I will describe, did not turn out so fortunately, as the leg had been three or four times blistered, and very likely when in an inflamed state: besides, the bones were diseased; organized lymph was deposited round the sheaths of the tendons, and considerable adhesions had formed, so much so, that the bone and flexor tendons appeared one consolidated mass, and I was not able to distinguish the suspensory ligament from the tendons. The bone was right over on the pastern joint, and the foot looking me in the face. However, having been so very fortunate with the former case, I did not despair in an operation,

and commenced by making a longitudinal incision down the leg, after which I cut right and left with a scalpel, from the centre of the tendons towards their sides, until I got them both divided, examining the part with the finger very carefully at every cut, until the division was completed; but even then I could not get the leg straight, although I pressed it back several times.

I, at last, began to think that an anchylosis had taken place between the large and small pastern bones; and that I should not succeed; however, by placing my foot at the knee, with the assistance of another person pulling at the foot, I accomplished this object. I dressed the wound for some weeks with a little simple ointment, and it healed kindly.

The horse was a considerable distance from me, and there was not that attention paid him which I could have wished; consequently from an unforeseen disease which had been set up in the pastern joint, he was always inclined to favour the limb to the flexed position. It was again beginning to assume the crooked appearance eight weeks after the operation; but by removing the heeled shoe which was on the foot, and applying one with a lever at the toe, in one week the leg was perfectly straight. In fact, I found that the leg could be made to bend too much backward or too much forward by changing the shoes. The animal was to have been put to work in a few days after I saw him last; but his death put an end to all my expectations, as he was carried off by an attack of inflammation in the bowels. The leg was sent to me, and the following are the post-mortem appearances:—

The inferior articulating surface of the large pastern bone quite carious, the sessamoid bones very much diseased, and a large quantity of new bony matter thrown out round the head of the small pastern bone. Had he lived, in my opinion he would have been of little or no service, as the leg would in a short time have again got crooked, from his hanging it to save the diseased joint.

This is the eighth case which I have seen of caries of the articulating surface of the large pastern bone; and I am inclined to believe it exists, in a greater or less degree, oftener than we are aware of, particularly where the animal begins to knuckle over and get unsafe in his action: they are also more apt to stumble than the real grog, with the least existing disease between the two pastern bones.

The first person who was noted for performing this operation (dividing tendons), was a farrier of the name of Bracket. He lived at Carstairs, and operated on a horse belonging to the late Lord Hermond, about nineteen years ago; so that we are obliged to no modern veterinary surgeon for its merits. I understand he was very successful.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XVI.

The Velum Palati, and Os Hyoides.

Now, gentlemen, proceeding beyond the simple cavity of the nose, I must entreat your attention to a little anatomical detail: it shall be short, strictly confined to physiology or to practice; for I have too much to do in this short course, embracing the diseases of so many kinds of patients, to indulge in any inquiry, however otherwise interesting, which has no practice for its scope and object.

Attached to the crescent-shaped border of the palatine bone, you perceive a dense membranous curtain, a duplicature of membrane with interposed cellular and glandular and muscular substance. Its superior face is a continuation of the lining membrane of the nose; its inferior one that of the palate. It is called the *velum palati,* the veil of the palate: it hangs as a curtain or veil at the back of the palate.

It is attached to the whole of the crescentic border of the palatine bone, and also to the sides of the *ductus communis narium,* and likewise, as you will perceive, to the side even of the dorsum of the tongue; and it extends backward as far as the larynx, and lies upon, and in contact with, the dorsum of the epiglottis. So that you plainly see, in its natural loose pendant state, it is a perfect veil, or curtain, interposed between the cavity of the nose and the mouth, and cutting off all communication.

The Horse breathes only through the Nose.—The portion which lies upon the epiglottis is, to a certain degree, loose; but so tied down by this long attachment, which you trace anteriorly, and also by muscles which I shall presently describe, that it will open but a little way, and in one direction only: it will open to let the pellet of food pass into the œsophagus, and it will close when any pressure is made upon it from behind: so that two singular facts necessarily follow. The first is, that the horse breathes through his nose alone; and this will account for the complicated mechanism of muscle, and elastic cartilage and membrane, which we have already described, around the nostril, and which so beautifully expands it when, in rapid progression, a larger supply of air is required; and also the adaptation of the construction of the nostril to the different purposes for which the different breeds of horses are intended. If the nostrils are the only apertures through which the air can be admitted, they must be capacious, and easily

expansible, and they are so to a degree seen in no other animal, and fully commensurate to the wants of the horse.

Vomits through the Nose.—It is also sufficiently evident, that, in the act of vomiting, the contents of the stomach must be returned through the nostril, and not through the mouth. The horse is with great difficulty excited to vomit. Do not mistake here; the *velum palati* has nothing to do with this: but it depends on a singular construction of the cardiac orifice of the stomach, which I shall hereafter have to describe. This membrane regulates the passage or orifice through which the contents are discharged. It presents a mechanical obstruction to its return through the mouth, and which is only partially removed when the effort to vomit is unusually convulsive, or the power of every muscle and every membrane is relaxed.

The interposed substance between these continuations of membrane I have stated to be cellular, muscular, and glandular; the cellular, in its separate form, exists only in a slight degree; the muscular portion deserves a moment's notice.

Muscles of the Velum Palati.—The muscles of the palate are two. The first is the *stylo-palati*, the *tensor palati* in Mr. Percivall's anatomy of the horse, as published in THE VETERINARIAN. It is a beautiful muscle. Trace it from the styloid process of the temporal bone, closely united with, and seeming to form a common tendon with the stylo-pharyngeus, running along by the guttural pouch of the Eustachian tube, and, in some not well-defined way, influencing that auditory passage, and then passing through a curiously-formed cartilaginous loop at the extremity of the pterigoid process of the palatine bone, as perfect a pulley as ever was constructed; it here turns round, and is inserted into the posterior lateral part of the velum, or rather ends in an aponeurotic extension over it. This muscle tightens the palate, and so lifts the floating fringe of it.

The other muscle is the *circumflexus*, arising from the border of the palatine bones, and diffused over the whole of the velum, to tighten and to elevate it. The office of both is united; the first tightens the velum, and enables it to afford resistance to substances pressing upon it, and in doing so, in some measure elevates it; the second, while it likewise tightens the palate, elevates the border still higher.

The *velum palati* in the ox does not descend so low, and there is sufficient room left between it and the larynx for the purpose of breathing, and for the regurgitation of the food; and in conformity with this you will see that the tensor muscle is not so large, but the circumflexus is more developed and stronger. There is

not so much resistance wanted, but greater freedom of action. The ox breathes partly through the mouth.

In the dog, who breathes almost entirely through the mouth, the *velum palati* is still smaller, the *tensor* weak, and the *circumflexus* powerful. When coryza runs on to catarrh, and the membrane of the pharynx sympathizes with, or rather partakes of the inflammation, the velum palati becomes inflamed and thickened: it will not then act as a perfect veil or curtain; it will not adapt itself to every part of the opening, and there is a communication between the passages of the mouth and nose; and thus we frequently have the defluxion from the nose, tinged by the colour of the food, or particles of food mingling with it. We do not like to see this, because it proves to us the extent and the violence of the inflammation.

Pharynx.—The pharynx, at which we are now arrived, is a membranous, muscular, funnel-shaped bag, extending from the root of the tongue to the larynx and œsophagus; wider anteriorly at the back of the velum palati, and narrowing backwards until it terminates in the œsophagus. It is a powerful agent, by means of the muscles with which it is lined, in conveying the food from the mouth to the upper part of the gullet. This being its office, it belongs to the digestive system, and will be considered when we treat of that system. There is a bone, however, which constitutes a portion of its wall on either side, and common to it, to the tongue, and to the larynx, which must be now considered.

THE OS HYOIDES.

The Os Hyoides of the Horse.—The os hyoides is so named from its resemblance, in the human being, to the Greek letter Upsilon. In our patients the similarity can scarcely be traced. In the horse it has much more likeness to a spur, and the semicircular body and the neck of the spur are perfect. In the young animal this bone is divided into seven portions; in the adult animal it is clearly divisible into five. The *body* embraces, but not closely, the thyroid cartilage of the larynx, for you see that there is a cartilaginous, ligamentous substance intervening. This bone gives protection and support to the thyroid cartilage, and also attachments to several important muscles, as the *hyo-glossus longus*, to draw the tongue within the mouth, and the *brevis* having nearly the same office; and the *hyo-pharyngeus*, to dilate the pharynx, and the *anterior constrictor pharyngeus*, to contract the pharynx, and some other muscles. The principal muscles of the body of the os hyoides, are the *hyo-thyroideus*, from the inferior border

to a tubercle on the postero-inferior side of the thyroid cartilage, to elevate it and the larynx, or to depress the os hyoides; and the *hyo-epiglottideus* from the hollow opposite to the neck, to the back of the epiglottis, drawing it from and enlarging the opening into the trachea. The spur or neck projects anteriorly from two to three inches in length, and penetrates into the root of the tongue; its sides are roughened to give attachment to the *genio-hyo-glossi* muscles at the inferior part of the tongue, drawing down the tongue within the mouth, and limiting its action.

Attached by a perfect capsular ligament to the extremities of the body of the os hyoides, and rising from it somewhat obliquely, are two bones, termed the *shorter cornua,* or horns; they give a certain degree of motion to the body of the bone, and also attachment to some of the muscles which are lost in and constitute the body of the tongue. There is also a muscle, the *transversalis,* running from the anterior tubercle of one of these cornua to the other, limiting the motion yet strengthening the action of these bones; and also a more powerful muscle, the *hyoideus parvus,* mentioned by Percivall in his "Muscular System," but not afterwards described by him, from the shorter cornu to the longer, occupying the whole of the triangular space between them, and confining or bringing them close together.

United to the shorter cornua, and likewise by a proper capsular ligament, and constituting perfect joints, are the *longer cornua,* extending posteriorly and horizontally along the side of the pharynx, until they reach the petrous portion of the temporal bone. A little before this they begin to widen, and terminate in a kind of foot, the superior part or toe of which has a cartilaginous union with the temporal bone, and to the heel or inferior portion of which are attached two important muscles. The first is the *sterno-thyro-hyoideus,* and which arises even so low as the point of the sternum, and climbing up the neck above the *sterno maxillaris,* divides, about the middle of the neck, into three distinct bodies, yet united together by a slender tendon—the central one going to the lower border of the thyroid cartilage, and the lateral ones to the heels of the longer cornua of the os hyoides. Its use is to depress the os hyoides and larynx by drawing them downward and backward.

The other muscle attached to this process is the *hyoideus magnus* (the *hyoideus* of Mr. Percivall). It arises from the heel of the cornu, and, as it proceeds along the side of the bone anteriorly, its belly is divided, and forms a loop, through which passes one of the tendons of the *digastricus.* It has two insertions into the body of the os hyoides. This likewise draws the bone backward, or causes it to contract a little upon itself, and so helps to dilate the glottis.

These muscles deserve a fuller demonstration than I have time to give them; and you will ere long have the opportunity of attending on that demonstration. I have been compelled to mention them, in order that you may better understand the connexion and function of these important parts.

The Os Hyoides of the Ox.—You will at once perceive a considerable dissimilarity of structure between this bone in the horse and the ox. The spur is almost vanished—nothing remains but a little tubercle, to which, indeed, the same muscles are attached, but not with equal power. The shorter cornu on each side is multiplied into two, and the larger cornu terminates in a bifurcation of bone; and one of these bifurcations is not merely united to the temporal by cartilaginous adhesion, but a curious socket is formed between the mastoid process of the temporal bone, and a plate of bone let down for the purpose, in which the extremity of the cornu, swelled out into a head or tubercle, is received, and plays loosely yet securely. It is evident, then, that the tongue, freed from its attachment to a bone that runs deep into its root, has a more extensive action, and that this freedom of action is increased by the additional joints formed by the second shorter cornu.

I am not aware of any animal whose tongue requires so little extent and freedom of motion as the horse. He is not designed to graze closely, and his tongue is seldom or never employed in gathering his food. He is also doomed to be guided, and often cruelly restrained, by the bit. A tongue of considerable or of loose motion would be an inconvenience to him: under the unequal pressure of the bit, it would roll from one side to the other, and be excoriated or lacerated by the teeth. Thus tied down by the spur or appendix of the hyoid bone, it forms a useful pad on which the bit may rest, and on which it may work. The jaw which, even now, is too often injured by the bit, would be exposed to yet more frequent and severer injury. Therefore the tongue of the horse is thus confined. I know but one animal, the hare, in the hyoid bone of which this spur is found.

The ox has need of a far more flexible tongue. He bites much more closely to the ground, and, being destitute of teeth in the upper jaw, their place being supplied by a mere pad, he needs the aid of his tongue to curl round the grass to bring it into the mouth, and to help to hold it there until it is partly bitten and partly torn asunder. If you will observe a horse and a cow while grazing, you do not see, or scarcely see, the tongue of the one, while the tongue of the other is protruded at every bite, and is wrapped round the grass in the manner to which I have just alluded.

Grazing thus closely to the ground, the ox is subject to an annoyance from which the horse is in a manner free. He is conti-

nually getting dirt and filth and thorns and insects about his muzzle thus brought into contact with the ground, and he must have some means of ridding himself of the nuisance. He has it in the length and freedom of motion of his tongue. You will rarely see the tongue of the horse protruded from his mouth, except he has acquired the trick of licking his manger; but the ox is frequently employed in cleaning his muzzle, and his flexible tongue will reach even to his nostrils. When two horses are expressing their mutual friendship, it is by nibbling each other; oxen will stand licking each other for an hour at a time.

It was to give freedom of the tongue to the one, and to take it away from the other, that the ox had no projecting spur, and two perfect joints on either side, while the tongue of the horse was tied down by this inflexible bone piercing its root, and its freedom still more impaired by one joint only being given to the hyoid bone.

The Os Hyoides in the Dog.—Here you will perceive that we have not only a deficiency of spur, but also of tubercle. There is even a depression in the centre of the body of the bone, and there are two shorter cornua on each side. The tongue of this animal requires as much freedom as, or even greater than, that of the ox; for if he has not to gather his solid foot together, he has to lap that which is liquid.

Of the Swine.—We have here also the hollow instead of the spur or the tubercle, for the swine nuzzling in search of his filthy food requires considerable use of the tongue. You will observe the singular form of the cornua in this animal, the strength of the first shorter one, the smaller development of the central one, and the slimness and insignificance of the longer one, compared with that of any other animal that we have examined. You will observe likewise that the interposed ligament between the body of the bone and the thyroid cartilage (the hyo-thyroid ligament) is strangely diminished, the bone seeming closely to embrace the cartilage. Of the physiological reason of these differences of structure, I confess that I am unable to speak. Veterinarians have not yet deemed them worthy of attention. The time, however, is at hand, when our duty will be better understood and practised.

With regard to the difference of muscular structure I will not detain you. You will perceive that the *hyoideus magnus* in the ox has no pulley for the insertion of the digastric, and that the *stylo-hyoideus* is larger and digastric, while in the hog it is, like the longer cornu, of comparative insignificance. The *genio-hyoideus* is much more developed in the ox than in the horse.

ON DROPSY OF THE HEART IN LAMBS.

By Mr. W. C. Spooner, *V. S., Blandford.*

I was requested the other day, by a friend, to give my opinion as to the probable cause of a disease that has made some ravages in a flock of sheep about twenty miles from this place. The circumstances were communicated to him by letter; and I will subjoin a description of the complaint in the writer's own words:—"The whole flock appears to be diseased, except the lambs, with Dropsy of the Heart, which is most certainly ascertained, the bag which contains the heart being quite full of clear water, and, in many of them, appears to form itself into a chrystal jelly. The sheep seem in a most healthy state before taken: after the animal falters, it seldom lives more than six to twelve hours; three to eight of a day and night have died from all ages. The farm on which they are consists of arable, water, meadow, pasture, and down land. A small complaint of rot was supposed to have affected the ewes two years ago, since which, up to the present time, salt has been given them."

Will you be so good as to favour me with your opinion on the above in the next number of The Veterinarian? and if you would call the attention of your readers to this complaint, it may be the means of eliciting some useful information.

May not the salt, by occasioning a great degree of thirst, predsipose the animals to the complaint?

A SERIES OF ESSAYS ON THE BLOOD, BLOOD-VESSELS, AND ABSORBENTS.

By Mr. R. Vines, *V. S, Royal Veterinary College.*

Having been taught during my pupillage at the Veterinary College, as also when I attended lectures on human anatomy and physiology, certain acknowledged theories respecting the *blood, bloodvessels, absorbents, process of absorption,* &c. both in the fœtus and adult, and holding my preceptors in the highest estimation, I gave implicit credence to their opinions. Some years afterwards I was appointed, by the governors of the Veterinary College, an assistant to Professor Coleman; and then being in the constant habit of dissecting and minutely injecting the bloodvessels for anatomical purposes, as likewise attending the various slaughter-houses in the metropolis, where so many horses were destroyed under a variety of different diseases, cir-

cumstances came under my observation, which induced me seriously to reflect on what I had previously been taught; and the result was, that, at last, my confidence became shaken. My attention was thus drawn to the investigation of subjects which I soon conceived might prove interesting and important, not only to those practising the veterinary art, but likewise the professors of human medicine. Accordingly, June 28, 1826, a communication of mine appeared in the *Lancet* (see No. 149, vol. x); and the parts thereof most worthy of notice, as well as those of a variety of others which have appeared from time to time since, as well as the results of more recent observations and experiments, I beg leave to transmit to you for the purpose of laying them before the veterinary profession, and the public. I shall also introduce many remarks on what I have already published, it being six years since my first communication appeared; and the different subjects having been more closely investigated by me since, I may be considered more competent to give an opinion respecting them.

No. 1.

On the Functions of the first and second Classes of Absorbents.

In the month of June, 1826 (see *Lancet*), I was requested by some of our pupils, among whom was Mr. Sible, who is now a very able veterinary practitioner at Norwich, to attend them to a slaughter-house near Smithfield, for the purpose of instructing them in the performance of some necessary operations, and also of demonstrating some of the most important parts of the interior of the horse. Accordingly we selected for examination a five-year old mare, which was brought to be destroyed on account of a disease in her foot. After she was struck on the head, and her throat cut, we proceeded to dissect the abdominal viscera, and, on detaching the cæcum from the colon, I was much surprised to observe the *second class* of lacteal vessels situated in the mesentery, and surrounding the lymphatic glands, among the adipose substance, near the spine, greatly enlarged, and containing dark red blood; while, on the contrary, all those lacteals of the *first class*, and which arise from the inner surface of the intestines, and terminate in the second class, by means of the lymphatic glands, were much smaller in size than usual, and contained only a *transparent fluid*. The lymphatic glands, like the second class of lacteals, were full of dark red blood, as also the thoracic duct. I next examined the lymphatics of the lungs, and other parts of the body, and found them in a perfectly natural state, except a few of them on the concave part

of the left lobe of the liver, and which appeared slightly enlarged, and containing a reddish fluid, but nothing in comparison with those already mentioned. Every organ of this animal appeared in a perfectly healthy state, except her foot, and which seemed to be incurably diseased. The stomach and intestines contained only a few ounces of food.

As I had never heard of nor seen any case of this kind before, I thought it best to have the parts carefully removed, and sent to the College for further inspection; accordingly a strong ligature was passed round the superior part of the mesentery above the lymphatic glands, as near the spine as possible, to prevent the *dark red fluid* from escaping: these parts were then removed and sent away to be examined, and which was done by Mr. Sewell in the lecture room, who admitted the fact of the lacteal vessels and lymphatic glands containing *dark red blood*, but, at the time, never attempted to give any opinion as regards the *cause* thereof.

At various times during the day, and for some time afterwards, as long as these parts remained in a fit state, I repeatedly examined them, both by minute injections and dissections; and at last became convinced that this singular appearance did not arise from any disease, but that it was in consequence of *a natural or gradual enlargement of the second class of lacteal vessels*, whereby they were enabled to receive a large portion of *red blood* from the extreme branches of the arteries which are given off from the trunks of the mesenterics, and which are for the purpose of supporting the lymphatic glands; and that this arose in consequence of the *function of digestion* being *suspended*, and the first class of lacteals ceasing to absorb any chyle, whereby the *second class of lacteals* became *increased in power*, and were thus enabled to absorb the surrounding fat of the mesentery, to assist in the support of the animal's life. I have proved this idea to be correct from repeated examinations of different cases since, and which the following one will serve to substantiate.

A horse was destroyed at the slaughter-house in consequence of having broken knees. Both joints were laid open. Previous to this he was reputed to have been very fat, but had, in consequence of suffering severe pain from this accident, fallen away very rapidly in flesh. On examining the abdomen there was a great quantity of fat on the mesentery, and the lacteal vessels nearest the intestines appeared in their natural state, with the exception of not containing chyle; while, on the contrary, those lacteals nearest the lymphatic glands and spine were much larger than usual, and, as in the former case with the lymphatic glands and thoracic duct, contained dark red blood. The arteries which

supply these glands, and which arise from the mesenteric, were also much larger in size than usual, as well as their corresponding veins. All the lymphatics in other parts of the body were in a natural state; all the organs healthy; and the stomach and intestines contained only a very small portion of food.

These parts, as in the former instance, were carefully removed and sent to the College for inspection; as also numerous others, which occurred under various circumstances hereafter to be mentioned, some of which underwent the inspection of Sir A. Cooper, Sir C. Bell, Mr. Brodie, Dr. Barry, &c.

[To be continued.]

THE VETERINARIAN, JULY 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

THE BRITISH OX.

We adopt as our leading article an extract from the 1st Number of the forthcoming work on "Cattle," for the Society for the Diffusion of Useful Knowledge, by the author of "The Horse." It is in harmony with the commencement of a series of essays on the intellectual and moral faculties of domesticated animals, and which will be continued in our next Number.

In the earliest and most authentic account that we possess of the British Isles, the Commentaries of Cæsar, we learn that the Britons possessed great numbers of cattle; that they comparatively neglected the plough, and lived on the flesh and the milk of these animals. The fondness of this kind of food, on account of which foreigners sometimes attempt to ridicule the Englishman, is inherited from ancestors of the remotest date. No satisfactory description of these cattle occurs in any ancient author; but they would seem, with occasional exceptions, to have possessed no great bulk or beauty. The poets have celebrated the intelligence, or fidelity, or some interesting quality of almost every species of agricultural property but the heavy and seemingly stupid ox; not so uninteresting, however, as many have imagined him to be, when he is closely observed, and his habits and capabilities watched.

Cattle are, like most other animals, the creatures of education and circumstances. We educate them to give us milk, and to acquire flesh and fat. There is not much intelligence required for that. It is with him as with all our other domesticated dependents: when he has lost the wild freedom of the forest, and become the slave of man, without acquiring the privilege of being his friend or receiving instruction from him, instinct languishes, without being replaced by the semblance of reason. But when we press him into our immediate service,—when he draws our cart and ploughs our land,—he rapidly improves upon us; he is, in fact, altogether a different animal: when he receives a kind of culture at our hands, he seems to be enlightened with a ray of human reason, and warmed with a degree of human affection. The Lancashire and the Devonshire ox seem not to belong to the same genus. The one has just wit enough to find his way to and from his pasture; the other rivals the horse in activity and docility, and often fairly beats him out of the field in stoutness and honesty in work. He is as easily broken in, and he equals him in attachment and gratitude to his feeder.

It is, however, in other countries, where the services of the ox are more extensive, and his education more complete, that we are to look for that development of intellect that his sluggish nature would scarcely promise here. Burchell, in the 1st vol. of his Travels into the Interior of Africa, p. 128, says:—

"These oxen are generally broken in for riding when they are not more than a year old. The first ceremony is that of piercing their nose to receive the bridle; for which purpose they are thrown on their back, and a slit is made through the septum, or cartilage between the nostrils, large enough to admit a finger. In this hole is thrust a strong stick stripped of its bark, and having at one end a forked bunch, to prevent it passing through. To each end of it is fastened a thong of hide, of a length sufficient to reach round the neck and form the reins; and a sheep-skin, with the wool on, placed across the back, together with another folded up, and bound on with a rein long enough to pass several times round the body, constitutes the saddle. To this is sometimes added a pair of stirrups, consisting only of a thong with a loop at each end slung across the saddle. Frequently the loops

are distended by a piece of wood, to form an easier rest for the foot. While the animal's nose is still sore, it is mounted and put in training, and in a week or two is generally rendered sufficiently obedient to its rider. The facility and adroitness with which the Hottentots manage the ox has often excited my admiration: it is made to walk, trot, or gallop, at the will of its master; and being longer legged and rather more lightly made than the ox in England, travels with greater ease and expedition, walking three or four miles in an hour, trotting five, and galloping, on an emergency, seven or eight."

Major Denham, in his Travels into Central Africa, gives the following amusing account of some of these excursions :—

"The beasts of burden used by the inhabitants are the bullock and the ass. A very fine breed of the latter are found in the Mandara valleys. Strangers and chiefs in the service of sheikh or sultan alone possess camels. The bullock is the bearer of all the grain and other articles to and from the markets. A small saddle of plaited rushes is laid on him, when sacks made of goat skins, and filled with corn, are lashed on his broad and able back. A leather thong is passed through the cartilage of his nose, and serves as a bridle, while on the top of the load is mounted the owner, his wife, or his slave. Sometimes the daughter or the wife of a rich Shouaa will be mounted on her particular bullock, and precede the loaded animals, extravagantly adorned with amber, silver rings, coral, and all sorts of finery, her hair streaming with fat, a black rim of kohal, at least an inch wide, round each of her eyes, and I may say arrayed for conquest at the crowded market. Carpet or robes are then spread on her clumsy palfry,—she sits *jambe de ça jambe de la*,—and with considerable grace guides her animal by the nose. Notwithstanding the peaceableness of his nature, her vanity still enables her to torture him into something like caperings and curvetings."

It is, however, in the southern part of Africa that the triumph of the ox is complete. His intelligence seems to exceed any thing that we have seen of the horse, and he is but little inferior to that most sagacious of all quadrupeds, the dog. Among the Hottentots, these animals are their domestics, and the companions of their pleasures and fatigues; they are both the protectors and

the servants of the Caffre, and assist him in attending his flocks, and guarding them against every invader. While the sheep are grazing, the faithful *backely*, as this kind of oxen is called, stands and grazes beside them. Still attentive, however, to the looks of its master, the *backely* flies round the field, obliges the herds of sheep that are straying to keep within proper limits, and shews no mercy to robbers, nor even to strangers who attempt to plunder: but it is not the plunderers of the flock alone, but even the enemies of the nation, that these *backelies* are taught to combat. Every army of Hottentots is furnished with a proper herd of these creatures, which are let loose against the enemy. Being thus sent forward, they overturn all before them; they strike down with their horns and trample with their feet every one who attempts to oppose them, and thus often procure their masters an easy victory, before they have begun to strike a blow.

An animal so serviceable, is, as may be supposed, not without its reward. The *backely* lives in the same cottage with its master, and by long habit gains an affection for him; for, in proportion as the man approaches to the brute, so the brute seems to attain even to the same share of human sagacity. The Hottentot and his *backely* thus mutually assist each other; and when the latter happens to die, a new one is chosen to succeed him, by a council of the old men of the village. The new *backely* is then joined with one of the veterans of his own kind, from whom he learns his art, becomes social and diligent, and is taken for life into human friendship and protection."—*Illustrations of Natural History*, p. 88.

There is a well-authenticated story of a Scotch bull, which shews similar, but not equal sagacity. "A gentleman in Scotland, near Laggan, had a bull which grazed with the cows in the open meadows. As fences are scarcely known in that part, a boy was kept to watch, lest the cattle should trespass on the neighbouring fields, and destroy the corn. The boy was fat and drowsy, and was often found asleep; he was, of course, chastised whenever the cattle trespassed. Warned by this, he kept a long switch, and with it revenged himself with an unsparing hand if they exceeded their boundary. The bull seemed to have observed with concern this consequence of their trans-

gression, and, as he had no horns, he used to strike the cows with his large forehead, and thus punish them severely, if any of them crossed the boundary. In the mean time he set them a good example himself, never once entering upon the forbidden bounds, and placing himself before the cows in a threatening attitude if they approached it. At length his honesty and vigilance became so obvious, that the boy was employed in weeding, and other business, without fear of their misbehaviour in his absence."—*Instinct Displayed*, Letter 34.

Captain Cochrane, in his Travels in Colombia, vol. ii, p. 251, places them in another, and not uninteresting point of view: "I was suddenly aroused by a most terrific noise, a mixture of loud roarings and deep moans, which had the most appalling effect at so late an hour. I immediately went out, attended by the Indians, when I found, close to the rancha, a large herd of bullocks collected from the surrounding country; they had encompassed the spot where a bullock had been killed in the morning, and they appeared to be in the greatest state of grief and rage: they roared, they moaned, they tore the ground with their feet, and bellowed the most hideous chorus that can be imagined; and it was with the greatest difficulty they could be driven away by men and dogs. Since then I have observed the same scene by daylight, and seen large tears rolling down their cheeks. Is it instinct merely, or does something nearer to reason tell them, by the blood, that one of their companions has been butchered? I certainly never again wish to view so painful a sight:—they actually appeared to be reproaching us."

If cattle exhibit some of the good qualities of superior animals, or even of man himself, they likewise have some of his failings. Vanity forms as distinguishing an attribute of the female of this species as of some others. The account of the Swiss cows is not a little amusing, although perhaps somewhat exaggerated:—

"In the Swiss canton of Appensell, pasturage being the chief employment of the inhabitants, the breeding of cattle, and the subsequent management of the dairy, are carried to the greatest perfection. The mountaineer lives with his cows in a perpetual exchange of reciprocal acts of kindness; the latter affording almost every requisite he needs, and in return they are provided

for, and cherished by him, and sometimes more so than his own children. They are never ill-treated nor beaten, for his voice is sufficient to guide and govern the whole herd, and there reigns a perfect cordiality between them.

"In the Alps, the fine cattle are the pride of their keepers, who adorn the best of them with an harmonious set of bells, chiming in accordance with the celebrated *ranz des vaches*. The finest black cow is adorned with the largest bell, and those next in appearance wear the two smaller ones. Early in the spring, when they are removed to the Alps or to some change of pasture, he dresses himself in all his own finery, and proceeds along, singing the *ranz des vaches*, followed by three or four fine goats: next comes the finest cow, adorned with the great bell; then the other two with the smaller bells, and these are succeeded by the rest of the cattle, walking one after another, and having in their rear the bull with a one-legged milking stool on his horns, while the procession is closed by a sledge bearing the dairy implements.

"It is surprising to see the pride and pleasure with which the cows stalk forth when ornamented with their bells. One would hardly imagine that these animals are sensible of their rank, and affected by vanity and jealousy; and yet if the leading cow be deprived of her honours, she manifests her disgrace by lowing incessantly, and abstaining from food, and losing condition. The happy rival on whom this badge of superiority has devolved, becomes the object of her vengeance, and is butted, and wounded, and persecuted by her in the most furious manner, until she regains her bell, or is entirely removed from the herd."—*Illustrations of Natural History*, p. 72.

We are exceedingly obliged to Scotus for the explanation which he has given us of Mr. Dick's last examination, and we hasten to set ourselves right with that gentleman. We did express some regret that no veterinary surgeon was present on that occasion. Scotus, who we have reason to believe is a pupil of Mr. Dick, and naturally attached to such an instructor, and jealous of his reputation, assures us that several of the Edinburgh veterinary practitioners were invited, and had promised to attend, but had been prevented by professional engagements;

and that it was well known among the profession, that the examination was a public one—that it was open to every respectable veterinarian who would intimate to Mr. Dick his wish to attend—and that it would afford much gratification to that gentleman if his veterinary brethren would take their fair share in the examination. Some veterinary surgeons were present at the examination of 1831, and one of them travelled many a mile in order to attend; and their absence at the last was perfectly accidental, and a subject of much regret to Mr. Dick. Our correspondent likewise adds, that the examiners at the last meeting were more efficient than we had supposed; for two of them, one of whom had been president of the Edinburgh College of Surgeons, had done Mr. Dick the honour to attend a whole course of his lectures.

We regret that we were not aware of these circumstances when we gave our report of this meeting: our knowledge extended to one fact only—the absence of veterinary practitioners and examiners; but we knew not with whom the fault lay that they were thus absent. It gives us sincere pleasure to be enabled to set ourselves right with Mr. Dick, and Mr. Dick more than right with his professional brethren: his consistency is established, and that liberality for which his professional brethren esteemed him stands unimpeached. These public examinations, and examinations by veterinary men, alone are wanting to ensure the rapid progress of veterinary science. He who is publicly, and although not maliciously yet strictly, examined in the persons of his pupils, must bid adieu to wild and fanciful theory, and inculcate sound and wholesome and practical lessons, and keep pace with the rapid march of improvement.

Vet. Metropolitanus.—We have heard of this interference with private practice; and we well know that it is sanctioned neither by the regulations of the institution, nor the wishes of the governors: we also recognize the truth of the legal adage, "Qui per alium facit, seipsum facere videtur:" but our correspondent must favour us with his name, and with some well-authenticated case.

Veterinary Jurisprudence.

Shackle *v.* Coggs.

We are glad that we are enabled to lay before our readers a more detailed account than has hitherto appeared of this singular trial. The discrepancy among the witnesses is not a little amusing; but, after all, we believe justice to have been fairly done.

The horse was bought, early in the last spring, at Downham, in Norfolk; and on his journey to town the plaintiff's servant thought that he went a little tenderly, yet on his arrival said nothing of it to his master. The horse, however, had not been in the plaintiff's stables more than two or three days, before he was decidedly lame. He was taken to three veterinary surgeons, who pronounced him to have the navicular joint disease, and consequently was unsound. Professor Coleman afterwards examined him, and could not deny that he was lame, but denied that the horse had the navicular joint disease, and thought the lameness might be of a temporary nature. The plaintiff wished to return the horse; the defendant demurred, and issue was joined.

Mr. John Field examined the horse at the latter end of March and the beginning of April. When he first saw him he was decidedly lame on the near fore foot. Afterwards he was nearly as lame on the off foot; and then the lameness returned to the near foot, so decidedly, that it could not possibly be mistaken. It was disease of the navicular bone of the near foot. He had no doubt about it. The lameness in the off foot arose from bad thrush; and both the diseases must have existed at the time of purchase. He was sure that it was a navicular case, not from any one circumstance or symptom, but a combination of them. The near foot was smaller than the off; there was a full half-inch difference in the shoes: it was more concave than the off—very concave; there was considerable heat about the foot; there was a peculiar action, which it was impossible for him to describe, but which was always indicative of disease of the navicular bone. He put much dependence on this peculiarity of gait, or putting the foot to the ground. In some instances, as in shoulder cases, it was almost the only guide; and there was here a total absence of any superficial cause of lameness.

On examining the horse closely there were some suspicious marks about the fetlock, as if the operation of neurotomy had been attempted to be performed. There was a long mark or scar on the inner side, nearly in the situation of the nerve; and there

was a bulb extremely sensitive on the corresponding place on the outside. He could not say that the operation had been performed, but he thought there had been a bungling attempt at it. It was often resorted to in these cases; it could not cure the disease, but it concealed it by removing the lameness.

As to the thrush in the off foot, it was of that nature, that it must have existed a fortnight or three weeks, and was also unsoundness.

Mr. James Turner had likewise examined the horse towards the latter part of March, and had pronounced him to be then lame in both fore feet, but lamer in the off foot than in the near, although this afterwards varied. He had observed the marks to which Mr. Field had referred, but could not associate them with the operation of neurotomy, or even a bungling attempt at it. That on the outside seemed to have been accidental, that on the inner side arose from cutting; they were somewhat removed from the situation of the nerve, and he had ascertained that the main trunk of the nerve was perfect. The lameness of the off foot arose partly from thrush; that of the near foot, from contraction, and that peculiar species of contraction which was from below upwards. Although the foot seemed to retain its circularity, there was actually considerable contraction, which occasioned compression on the navicular joint; and when the foot was called on to perform rapid action, the descent of the navicular bone was opposed, and this produced inflammation of the sinovial membrane of the joint. The terderness and pain necessarily accompanying inflammation of this membrane were the cause of this lameness. It seemed, when he saw it, to be more functional than organic disease, and he believed that it existed at the time of sale. The causes of this peculiar contraction were various; the principal ones, perhaps, were confinement in the stable, the absence of moisture, and the common method of shoeing. The feet of all horses, after being long shod, become more or less contracted, occultly and really so, although the circular form seemed to remain as perfect as ever. He carefully distinguished between contraction generally, and this particular species of it from below upwards, interfering with the descent of the navicular bone, bruising and inflaming the sinovial membrane, and producing inflammation and lameness. The thrush must have existed a fortnight or three weeks, in order to account for the degree of lameness in the off foot.

Mr. Boutal had also examined the horse. It was lame, and from navicular disease; and which disease must have existed at the time of sale.

On the part of the defendant, one of his servants swore that the horse had the finest feet in the world; that he had known him

for twelve months, and that he had never been for a moment lame. The farrier who had been accustomed to shoe the horse, swore that the feet were good, and that the horse was perfectly sound up to the time of his coming to town.

A veterinary surgeon in the neighbourhood spoke to his general soundness, and that he had examined and passed him as sound before he started for town.

The assistant to a veterinary surgeon at Horncastle swore that he knew the horse early in 1831; and that he was perfectly sound, and that he had then observed the scars to which Mr. Field referred.

Another practitioner of eighteen years' standing examined him in the fair at Downham, and the horse was sound.

Professor Coleman deposed that the horse had been brought to him to ascertain whether he had undergone the operation of neurotomy, and that he gave it as his opinion that no such operation had been performed or attempted. That he saw no unsoundness then about the horse; but that, when he was brought to him again three or four days afterwards, to his great surprise, he found him palpably lame in the off foot, and that from thickening, and hardening, and morbid concavity of the sole. He had not indeed taken off the shoes, as Mr. Turner had, and whom he complimented as the discoverer of this navicular joint disease; but he did not think that the horse then had, or now has, this navicular affection, although the morbid concavity of the sole might lead to it. He admitted that there were various kinds of contraction, and one in which the navicular joint was necessarily compressed and the membrane inflamed, but he did not think that this was the case here. It was a morbid concavity of the sole, produced by standing idle in the stable, by heated litter, or by want of frog pressure. He was not sure, that, if the sole had been here thoroughly pared out, the lameness would have ceased, although he was inclined to think that it would; but, certainly, the thickness remaining, and the sole becoming fixed, the horse would be irrecoverably lame. A thrush was not necessarily unsoundness. He did not think that it was the cause of unsoundness here; but if it were, it must have existed some considerable time.

A verdict was given in favour of the plaintiff.—Damages £110, the price of the horse, and £12 for his keep.

We wish that we were enabled more fully and perfectly to report this interesting trial. We should feel exceedingly obliged if our brethren in the metropolis would give us notice of expected trials, that we might be present, or send a competent reporter. These trials are very interesting, and instructive too.

Matson *v.* Webb.—Warranty of Lambs.

This was an action upon the warranty of some sheep, and was tried before the Chief Justice at the late Maidstone assizes, when the Jury found a verdict for the plaintiff, damages £72. The plaintiff purchased a quantity of lambs, which the defendant warranted sound: they, however, proved to be quite the contrary, and ten of them died very shortly after the purchase, and the rest were in a very unhealthy state. A correspondence in consequence took place between the parties; and the plaintiff finally wrote an angry letter, complaining of the dishonesty and fraud that the defendant had practised upon him, in having warranted as sound lambs which were in so miserable a condition; and stating, that, unless the purchase money was returned, an action would be brought. No answer, however, was ever returned to the letter; and the present proceedings were instituted. On the part of the defendant it was urged, that no warranty had ever been or intended to be given; and that the lambs became unhealthy after they got into the plaintiff's possession, from being improperly treated. His Lordship, in summing up, expressed some surprise that an answer had not been returned to the letter; and left it to the Jury to say, whether the defendant, at the time of the sale, knew of the unsoundness; if he did, he was responsible.—Verdict was given for the plaintiff.

Mr. Sergeant Wilde now moved for a new trial on two grounds,—the verdict being against evidence, and misdirection on the part of the learned Judge; and submitted, that no inference was to be drawn of there being a warranty because the defendant had not answered the angry letter, but allowed the other party to take his own course. The plaintiff could only recover upon making out warranty; and he relied upon that with reference to the count in the declaration, which was addressed to the law of warranty, and not misrepresentation.

The Chief Justice thought the manner in which he had left the case had not misled the Jury. He would state what his opinion of it was, but as two of his learned brethren differed from him, he thought it better to grant the rule, as a verdict against evidence only.

Mr. Sergeant Wilde suggested, that it would be very convenient if parties were always made to state why a new trial was to be granted. The learned Judges were of the same opinion, and stated that it should be made a rule of Court.

Sporting Department.

We regret that, notwithstanding we have added four additional pages to the present Number, we are compelled, by want of room, to give so curtailed an account of the Epsom and Ascot Meetings.

EPSOM MEETING.

Tuesday, June 5th.

The CRAVEN STAKES of 10 sovs. each. A mile and a quarter.

Mr. Vansittart's ch. c. Rubini, 4 yrs.		-	-	1
Sir R. Dick's Miss Mary Anne, 3 yrs.	-	-	-	2
Mr. Watson's br. c. Mayboy, 3 yrs.	-	-	-	3

Betting—7 to 4 agst. Rubini, 3 to 1 agst. Mary Anne, and 4 to 1 agst. Ambrosia.

After two false starts, Ambrosia came away in front at a rattling pace, seconded by Salute, the others keeping on the reserve to Tattenham Corner, where Salute failed in an attempt to get up, and the rest immediately after got in a cluster close at the heels of Ambrosia, Rubini and Mayboy being immediately next her. Ambrosia continued in front to the distance, when she gave up; Rubini instantly took her place, with Mayboy close behind; Miss Mary Anne waiting with great patience till opposite the Stand, where she made a vigorous push for the race. She managed to pass Mayboy, but was beaten cleverly by Rubini by a length.

Wednesday, June 6.

The GOLD CUP (value 140 sovs.) by subscriptions of 10 sovs. each, and 20 added; 3 yrs. 6 st. 4 lb; 4 yrs. 8 st.; 5 yrs. 8 st. 10 lb; 6 yrs. 9 st.; and aged, 9 st. 2 lb; mares and geldings allowed 3 lb; winners to carry extra.—The winner to be sold for 250, &c.; 2 miles.

Mr. Dickenson's ch. h. Lawn Sleeves, 6 yrs.	-	-	1
Sir G. Heathcote's b. c. Ferdoussi, 4 yrs.	-	-	2

The following were not placed:—Mr. Dockeray's Donegani, 5 yrs.; Mr. Gratwicke's Jest, filly, 4 yrs.; Mr. Martyn's b. f. Misletoe, 3 yrs.; Mr. Dennison's Yorkshire Lizzy, 3 yrs.; Lord Warwick's Water Witch, 4 yrs.; Lord Lowther's Midhurst, 4 yrs.; Mr. Monroe's Crispin, 4 yrs.; and Lord Ongley's Suffolk Punch, 5 yrs.

Betting—6 to 4 agst. Midhurst, 4 to 1 agst. Suffolk Punch, 5 to 1 agst. Water Witch, 5 to 1 agst. Crispin, and 10 to 1 agst. Lawn Sleeves.—Won by a length.

Thursday, June 7.

The DERBY STAKES of 50 sovs. each, h. ft.; for 3 yr. colts 8 st. 7 lb, and fillies 8 st. 2 lb. A mile; 101 subscribers.

Mr. Ridsdale's St. Giles, by Tramp (Scott)	-	-	1
Mr. Vansittart's Perion, by Whisker (Boyce)	-	-	2
Mr. Ridsdale's Trustee, by Catton (G. Edwards)		-	3

The following also started, but were not placed.—Mr. Gully's Margave, by Muley (S. Day).—Lord Chesterfield's Non-compos (Conelly).—Mr. Mills' Kate, by Lapdog (Pavis).—Lord Exeter's Beiram, by Sultan (Arnull).—Mr. Chifney's Emiliana, by Whisker (S. Chifney).—Mr. Batson's Mixbury, by Catton (Lye).—Lord Mountcharles's Minster, by Catton (H. Edwards).—Mr. Shard's Revealer, by Reveller (H. Jacques).—Mr. Forth's Gratis, by

Middleton (owner).—Lord Exeter's Spencer (Darling).—Lord Worcester's Haymaker, by Wrangler (Robinson).—Lord Portarlington's Bedouin (F. Buckle).—Lord Lowther's Messenger (Wheatley).—Lord Lowther's Lazarone (Chapple).—Mr. Hunter's Peablossom colt (F. Robinson).—Mr. Wreford's Wallace (a stranger).—Mr. West's c. by Claude Lorraine (Calloway).—Lord Orford's c. by Whisker, out of Selima (Nat.)—Sir G. Heathcote's Damascus (Wright).

In the ring the last betting was 3 to 1 agst. St. Giles (taken), 6 to 1 against Perion (taken), 6 to 1 agst. Margrave (taken), 7 to 1 agst. Mixbury (taken), 12 to 1 agst. Kate, and 25 to 1 agst. Gratis.

Mr. Ridsdale declared to win with St. Giles. Trustee made play at a pace that we have not seen for the Derby some years; Kate lay second, Perion third, and Beiram next, with St. Giles and Margrave at hand; Non Compos, and two or three others, tolerably well up. This was the order of running till they got to Tattenham Corner, where George Edwards, who was on Trustee, took a hasty glance of the race, and, finding that St. Giles was very forward and going the pace well, he actually laid the whip into his horse, and brought them into straight running at a pace that told terribly amongst the outsiders—the tailing was woful. When the horses got round the corner, those mentioned as being next Trustee drew upon him, and we were as yet unable to form any opinion of the race. About a distance and a half, however, from the finish, St. Giles went by them all, Perion passing Trustee at the same time, while Margrave, Kate, Non Compos, and Beiram, closed with the latter at the Grand Stand. Perion, Kate, and two or three others, attempted to get up, but died away one after the other, St. Giles winning very easily by a length and a half. Trustee ran a remarkably good horse, and has certainly justified all that has been said of him; he was only half a length astern of Perion: Margrave was fourth, Non Compos fifth, and Kate sixth, and Beiram was not far behind. Messenger had cast himself in the stable on Monday night, and was very much cut.

Mr. Ridsdale netted two thousand seven hundred and seventy-five pounds by the stakes (after the customary deductions), and upwards of *forty thousand pounds* by bets! the largest sum that has been won on any race for several years; and this St. Giles was, for a long time, out of the betting, owing to a general belief that he was wrongly described, and therefore disqualified.

Friday, June 8.

The Oaks Stakes of 50 sovs. each, h. ft., for 3-yr. old fillies, 8 st. 4 lb.; mile and a half. 83 subs.

Marquess of Exeter's Galatea (Advance)	(Conelly)	1
Mr. S. Day's Lady Fly, by Bustard -	- -	2
Mr. Sadler's Eleanor, by Middleton -	- -	3

The following also started, but were not placed:—Lord Lowther's Whimsey, by Partisan (Wheatley).—Mr. J. Mills's Kate, by Lapdog (Chifney).—Captain Byng's f. Dryad, by Whalebone (Pavis).—Mr. Grant's f. by Middleton, out of Jest (Macdonald).—Mr. Houldsworth's br. f. Corset, out of Whalebone (Darling).—Duke of Richmond's Somnambule (Boyce).—Lord Egremont's f. by Whalebone, out of Elfrid (H. Edwards).—Sir G. Heathcote's Damascene (Wright).—Lord Chesterfield's Olga, by Paulowitz (J. Day).—Mr. Bigg's ch. f. Miss Badsley (Scott).—Lord Burlington's f. by Bizarre, out of Cat (Arnull).—Mr. Forth's f. by Straitwaist, out of Martha (Buckle).—Mr. Rush's f. by Whalebone, out of Romp (Robinson).—Lord Egremont's Sister to Tom Thumb (Templeman).—Capt. Bulkeley's Sister to Pinwire Nat).—Mr. Cosby's L'Amitié (C. Day).

At the breaking up of the ring, the odds were 5 to 2 against Galatea and Kate. Whimsey was at 7 to 1, Olga at 12 to 1, Lady Fly at 16 to 1, Eleanor at 16 to 1, Somnambule at 20 to 1, Lord Egremont's two at 20 to 1,

and Miss Badsley at 25 to 1. Won in a canter by two lengths, Lady Fly beating Eleanor still further: two or three others, including Kate and Corset, were clustered behind Eleanor, but the others were tailed off some distance from home. The pace was good, although infinitely slower than for the Derby.

ASCOT MEETING.

Tuesday, June 19.

The OAKLAND STAKES of 30 sovs. each. Two miles and a half.

Mr. W. Chifney's Rowton, 6 yrs. 9 st. 3 lb. (S. Chifney) -	1
Mr. Payne's Paddy, 4 yrs. 7 st. 4 lb. (Nat.) - -	2
Mr. Wagstaff's Saddler, 4 yrs. 8 st. 8 lb. (G. Edwards) -	3

Betting, 3 to 1 agst. Rowton; 3 to 1 agst. Saddler; 4 to 1 agst. Paddy; 7 to 1 agst. Lucetta; and 9 to 1 agst. Gondolier. Paddy and Guildford made play at starting, neither having any positive lead for the first half mile; Paddy then went ahead, Shirine lying third to them. Rowton was last, where he continued for more than half the distance, after which he began to creep up: at the two-year-old post the horses began to change places. Shirine fell off, and was immediately followed by Guildford, Lucetta, and Leander. Saddler went up to Paddy's quarters at the distance, keeping at the inside; he was followed directly after by Rowton, who waited till about twenty strides from the finish, and then he went by Paddy, defeating him cleverly by three-quarters of a length. Gondolier was fourth.

HIS MAJESTY'S PLATE of 100 guineas. 4 miles.

Mr. Watson's Conscript (late Mayboy) 4 yrs. 10 st. 7 lb. (Pavis)	1
Mr. Munro's Crispin, 4 yrs. 10 st. 7 lb. (G. Edwards) -	2
Sir M. Wood's Lucetta, 6 yrs. 11 st. 12 lb. (Robinson) -	3
Mr. Payne's Paddy, 4 yrs. 10 st. 7 lb. (Conelly) - -	4

7 to 4 agst. Lucetta, 2 to 1 agst. Paddy, and 4 to 1 agst. the winner. Crispin made the running at a great pace, till within a distance of the finish; when Conscript came out, and won easily by two lengths.

Thursday, June 21.

The ECLIPSE FOOT, with 200 sovs. given by the King. 3 subs.

Lord Chesterfield's Priam, 5 yrs. (Conelly) - -	1
Gen. Grosvenor's Sarpedon, 4 yrs. (John Day) - -	2

4 to 1 on Priam. Sarpedon made running at his best pace. Half way within the distance Priam came to the front, and won in a canter by two lengths.

The GOLD CUP, value 200 sovs. 12 subs.

Sir M. Wood's Camarine, 4 yrs. (Robinson) - -	1
Mr. Chifney's Rowton, 6 yrs. (Chifney) - - -	2
Mr. Wagstaff's Saddler, 4 yrs. (Conelly) - -	3

Betting at starting—11 to 8 agst. Camarine, 7 to 4 agst. Rowton, and 7 to 2 agst. Saddler.

The horses went off at a walk, and continued so for upwards of a hundred yards, when Rowton made running at a very moderate canter, not did he get into any thing like speed till they got to the turn for straight running, where the pace became severe. Rowton maintained his lead till past the Grand Stand, when Camarine went alongside him; and for the last forty yards the race was terrible—both horses were severely punished; and so close was the finish, that the judge pronounced it a dead heat. The Saddler was beaten three or four lengths. Before the jockeys weighed, Sir M. Wood made a complaint that his mare had been crossed or forced out by Rowton: the matter was examined before the Steward, who decided

that there was no cross or foul play, and that the dead heat must be run out. The betting at starting was now 11 to 10 on Camarine. Rowton made running at a good pace, Camarine waiting very patiently till within the distance, when she crept up; at the Stand she was alongside, and directly after headed Rowton, winning very cleverly by two lengths.

Friday, June 22.

His Majesty's Plate of 100 guineas, for hunters that have gone eight runs with his Majesty's Stag Hounds in the last season. Two miles and a distance.

Count Matuscewicz's Lawn Sleeves, 6 yrs. 11 st. 12 lb. -	1
Lord Lichfield's Dunton (half bred) 6 yrs. 11 st. 12 lb. -	2

Latest state of the odds for the Doncaster St. Leger.

9 to 1, Lord Kilburne's Retainer	15 — 1, Mr. Fox's Julius
9 — 1, Mr. Richardson's Zany	16 — 1, Mr. Vansittart's Perion
10 — 1, Mr. Beardsworth's Ludlow	20 — 1, Mr. Walker's Francesca
12 — 1, Mr. Gully's Margrave	20 — 1, Sir R. Bulkeley's Birdcatcher
12 — 1, Lord Cleveland's Trustee	25 — 1, Mr. Walker's Conrad

Miscellanea.

THE VILLAGE BLACKSMITH.

The degree in which the blacksmith deviates from the more laborious formation of common articles out of common iron, by the ordinary processes of forging, welding, riveting, &c., depends, in a great measure, upon his situation, and the employment of the people in his neighbourhood. In large towns, where whitesmiths and other classes of artificers abound, the blacksmith is perhaps seldomer engaged in their more appropriate, and to him not unfrequently less lucrative avocations. Indeed, so unprofitable is this occasional transition from the forging of black to the finishing of bright articles regarded in the north, that there exists an apopthegm to the effect that, "The smith that is a blacksmith and a whitesmith too, maun gae shoe the goslings." Notwithstanding, however, this significant hint to the maker of horse-shoes to keep close to one business, it is generally observed that the Scotch blacksmiths enter more largely into the manufacture of miscellaneous articles than their English fellows.

It is, however, in villages remote from the large towns that the blacksmith may be seen to assume not merely his real importance as a mechanic, but his relative consequence as a member of society, by presenting that *factotum* character, which not only indicates that he is an indispensable artificer in iron and even steel, but which has led to his figuring in poetry, romance, and even music; for who has not heard of the "Harmonious Blacksmith" of Handel, the "Wayland Smith" of Sir Walter Scott, and the "Wat Tyler" of Robert Southey? Besides the appropriate business of farriery, including the doctoring as well as

the shoeing of horses; the anomalous avocations of cowleech, dentist, parish clerk, precentor, and newsmonger in general, have been collateral distinctions of the village Vulcan ever since, and, indeed, long before, Shakspeare's celebrated passage was written, in which Hubert is made to say;—

> "I saw a smith stand with his hammer, thus,
> The whilst his iron did on the anvil cool,
> With open mouth swallowing a tailor's news;
> Who, with his shears and measure in his hand,
> Standing on slippers (which his nimble haste
> Had falsely thrust upon contrary feet),
> Told of many thousand warlike French,
> That were embatteled and rank'd in Kent."
>
> *King John.*

And so it happens, that at the very moment of transcribing this page, an anecdote of so singular a character, as connected with an individual of this fraternity, is travelling through the newspapers, as irresistibly to tempt its preservation in this place, as more likely to reflect honour upon the craft in the estimation of most persons than the most notable incident in the life of St. Dunstan himself.—"At the late electioneering canvass for the Lanark district of burghs, between Mr. Gillon and Mr. Monteith, a poor blacksmith in Peebles, of the name of Alexander Brodie, was waited upon by Mr. Monteith's party, and actually offered 1000 pounds for his vote; but this the honest man firmly declined, and, in spite of all entreaties to the contrary, went and voted gratis on the side which his conscience told him ought to be supported. So great was the admiration excited by this instance of integrity, that one of Mr. Gillon's most distinguished friends lately presented to Mr. Brodie a handsome silver snuff-box, bearing the following inscription, which is alike creditable to the donor and receiver:—'To Alexander Brodie, blacksmith, member of the town council of Peebles, this box is presented, as a mark of respect and esteem for the unrivalled instance of sterling worth and incorruptible integrity exhibited by him during the recent canvass for the representation of that burgh, by one of Mr. Gillon's oldest and most attached friends, Sir James Dalzell, bart., of Binns. Aug. 23, 1830.'"

This slight digression from the craft to the character of the blacksmith may be the more readily excused, even by the most choleric reader, when it is recollected that in our enlightened times, instead of the trite terms "blacksmith and jobsmith in general," the maker of horse-shoes paints on his sign-board "veterinary forge," at the least: and there is, or at least was a few years ago, over a common horse-shoeing blacksmith's, adjoining the Eglise de St. Sulpice, at the end of the rue Feron in Paris, the words "*artiste vétérinaire!!!*"—*Lardner's Cabinet Cyclopædia, No.* xxiv, p. 158.

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MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XVII.

The Anatomy of the Larynx of the Horse, Ox, Dog, and Swine.

PLACED at the top of the windpipe, the inner guard of the lungs, if any injurious substance should escape the Schneiderian membrane—the main guard against the passage of food into the respiratory tubes, and at the same time the instrument of voice—is the *larynx*. In its last character, indeed, it loses much of its importance in our patients; but even in the dumb animal it is a beautiful piece of mechanism, and deserves more consideration than I have time to give it in the course of these lectures.

It consists of five cartilages united together by a ligamentous substance, by distinct and perfect articulations, and by a seemingly complicated but simple apparatus of muscles; and, altogether, forming an irregular oblong tube, possessing great extent of motion with reference to the surrounding parts, and having the power of adapting itself to natural or morbid changes in the respiratory process, and more particularly to the production of the voice with all its intonations.

The Cricoid Cartilage.—At the base is the *cricoid cartilage.* It is the support, and, as it were, the bond of union, of the rest. This preparation is the larynx of the horse. The cricoid or ring-like cartilage (the fac-simile of a large Roman ring) is distinguishable in front from the rings of the trachea by its being at the summit of them, and projecting a little more than any of them. It is united to the first ring by a strong and elastic ligament, similar to that which is interposed between the rings of the trachea. As we advance along the sides it widens, and presents a considerable depression, occupied by a muscle common

to it and to the thyroid cartilage above, and occasionally bringing these cartilages closer together. Posteriorly it spreads out into an irregular hexagonal surface, giving to the whole of the cartilage the form of a ring with a broad expanse for the setting of the jewel. This expanse has a spine in the centre, with a roughened depressed surface on each side, for the insertion of muscles connected with the arytenoid cartilages above; and there are likewise at the four corners of this expanse little tubercles or prominences forming articulations with the other cartilages—perfect joints provided with capsular ligaments and synovial membranes, and thus admitting great freedom of action among the cartilages of the larynx. The two superior ones articulate with the arytenoid cartilages, the two inferior ones with the thyroid.

The Arytenoid Cartilages.—These are placed above, and rest upon the cricoid cartilage, articulating posteriorly with the tubercular prolongation which I have just pointed out to you;—they are connected laterally and inferiorly with the thyroid cartilage by cellular membrane, and anteriorly with the epiglottis at its base. Prolongations of them extend to and rest upon the chordæ vocales beneath, and doubtless influence their action. They are connected together posteriorly by cellular membrane and the fibres of the arytenoid muscle. Taken separately, they are of a triangular form, presenting, as you perceive, the principal angle laterally and anteriorly, and the base, presented posteriorly, being most irregularly formed. Posteriorly, and somewhat laterally, is a thickness of cartilage not found in any of the others, consisting of a strong spine, with a hollow on each side for the insertion of muscles. This strength of cartilage is placed here, because at this spot the larynx is most exposed to lateral pressure. The posterior point of the arytenoid cartilage constitutes one extremity of the irregular base of this triangle, and the tubercle of the cartilage the other extremity. The superior and unattached portions are curved and the edges bent round, and leave between them a triangular fissure with its base anteriorly, and which is the opening into the larynx.

The two cartilages here separate, but, uniting posteriorly, bear no indistinct resemblance to the lip or mouth of a ewer, and thence their name.

The Epiglottis.—This is a heart-shaped cartilage, springing from the anterior part of the larynx. Its base is composed of two slips of cartilage which run along the inside of the thyroid cartilage, attached to it by cellular membrane and ligamentous substance, forming one of the borders of the *sacculus laryngis*, and extending to the arytenoid cartilages. At the centre of its

base it is united to the thyroid cartilage by ligamentous substance, and derives support from it; and also, springing from the base of the spur of the hyoid bone, a muscle, the *hyo-epiglottideus*, is found, which was described in the lecture before the last, giving it farther support. This muscle is not found in the human being. The epiglottis is placed at the extremity of the opening into the windpipe, with its back opposed to the pharynx, so that when a pellet of food passes from the pharynx in its way to the œsophagus, it presses down the epiglottis, and by this means closes the aperture of the larynx, and prevents any portion of the food from entering it. The food having passed over the epiglottis, that cartilage, from its own elasticity and that of the membrane at its base, and more particularly the power of the hyo-epiglottideus muscle, rises again and resumes its former situation.

I am aware of the opinion of those who consider the epiglottis as connected with the voice alone—that it is a tongue of elastic substance placed to break the current of air, and to prevent any loud note from breaking into a higher tone. I have not time for this controversy, but acknowledge that I here belong to the old school, and believe that the principal use of the epiglottis is to close the entrance into the windpipe. Although this preservation of the tone may be a subordinate function, yet it is one that is not perfectly discharged, for an ox will seldom low without "the loud note breaking into a higher tone."

The Thyroid Cartilage.—Occupying almost the whole of the external part of the larynx, both anteriorly and laterally, is the *thyroid cartilage.* It envelopes and protects all the rest, a point of considerable importance, considering the injury to which the larynx is exposed by our cruel system of curbing and tight reining: it also forms a point of attachment for the insertion of the greater part of the delicate muscles by which the other cartilages are moved. It derives its name from its supposed shield-like form; but in the horse, although it discharges the office of a shield, it does not bear the most distant resemblance to this portion of defensive armour. It consists of two alæ or wings, forming the lateral defence of the larynx, united at the upper and anterior part by a knob of thick cartilage, which, at a very early age, becomes perfectly bony. It may be termed the head of the cartilage, for the wings soon widely open, and the intermediate space is occupied by an extensive ligament, the *crico-thyroid ligament*, which is attached to the anterior edges of the wings, and reaches down and unites with the anterior part of the cricoid cartilage, thus connecting together the thyroid and cricoid cartilages. When this ligament is removed, the thyroid

cartilage more resembles a bat crouching with its wings somewhat expanded than anything else that I can liken it to.

This interposition of ligament between the wings of the thyroid cartilage is greater in the horse than in any other animal, except, perhaps, the bear and the seal. It can have no reference to the voice, but it is probably materially connected with the function of respiration. It is to enable this upper portion of the respiratory canal, partly filled, as we shall presently see, by the chordæ vocales, to expand, when, in rapid progression, the animal requires a greater portion of arterialized blood, and atmospheric air must be admitted into the lungs in order to arterialize it. I have in a former lecture described the os hyoides as surrounding the anterior and upper edge of the thyroid cartilage, giving it support, and being the means by which motion is chiefly communicated to the larynx as a connected body. You will observe the ligamentous substance (the *ligamentum hyothyroideum*), which is interposed between the cartilage and the bone, and you will remember the cartilaginous pillars (cornua), at the extremities of which the hyoid bone articulates with the cartilages. By means of these prolongations greater freedom of motion is given to the os hyoides, connected as it is with the tongue, than would consist with the function of the larynx. You will likewise observe at the base of these cornua, and, a little anterior to it, two small apertures piercing the cartilage, through which pass the nerves that supply the muscles of the larynx.

Following the posterior edge of the thyroid cartilage, we arrive at an angle, situated at its very base; and a kind of prolongation of it—the inferior cornua, by which it is articulated with the cricoid cartilage. We have here again a perfect joint, and the establishment of freedom of motion between the two cartilages. They are, besides this, connected together all round, both by muscular or cellular, or ligamentous substance.

The Cartilages of the Larynx in the Ox.—We must now turn to our other patients. We shall observe manifest points of difference, and some of them we may trace to the difference of function required by the habits and destination of the different animals. In the ox the *arytenoid cartilages* approach nearer to each other; there is not the dilated opening into the wind-pipe.—Little speed is required in the labour of the ox. For the same reason, passing for a moment the epiglottis, the *thyroid cartilage* has not the *fissure* which we have found in the horse. There is not occasion for the difference of expansion in this cartilaginous box, because there is not the occasional difference of speed. The thyroid cartilage is larger than it is in the horse, for what physiological reason I am unable to explain, except that the whole head

and throat are comparatively larger and thicker; it is, however, far from being so strong and so stout as in the horse, for it has not so much occasional pressure to resist, and it is not exposed to so much danger. The os hyoides scarcely reaches to the thyroid cartilage, and the cornua to which it is united are found on the very anterior and upper portion of the cartilage, in order to give freer motion to the tongue, and to render it in a manner independent of the larynx. The little triangular-shaped body of the bone, with an evident capsular ligament attaching the sides to the head of it, embraces only the hyo-thyroid ligament. The appendices or cornua of the thyroid cartilage connecting it with the cricoid are much longer. The *epiglottis* is shorter and rounder than in the horse; the sharp termination of it is rounded off; the aperture into the larynx is not so large, and the lengthened epiglottis of the horse is not required. Nature seldom gives more than the animal requires. We may possibly derive a little lesson in the science of gastronomy from this. Report speaks very falsely, or many of the tongues that are pickled by the drysalter, and find their way to the tables of the tavern and elsewhere, never came from the mouth of the ox. The epiglottis is generally preserved in the pickled tongue, and will always tell tales. This cartilage in the horse has a sharpened termination—in the ox it is rounded. The tongue of the horse is tied down by the spur of the hyoid bone, and is short and thick. The tongue of the ox is released from this curb, and is used to clean the whole of the muzzle, and can be insinuated even into the nostril. A short plump tongue, then, until the epiglottis is seen, is rather a suspicious affair. A long ugly looking tongue, with a rounded epiglottis, may be eaten without fear.

The Dog.—The only difference in the structure of the cartilages of the larynx in the dog is, that they are exceedingly flexible; they had need be so, considering the extensive and rapid and violent motion of the head of the dog, and the pressure to which the larynx must occasionally be exposed.

The Hog.—In the hog I will beg you to observe the little space between the arytenoid cartilages. This animal is not one of speed: also the development of the epiglottis—comparatively much larger than in the larynx of any of our patients. It is not only larger, but it is differently constructed. The cellular ligamentous substance at its base is far looser than in any of the rest, and the epiglottis is more moveable; and not only so, but from its increased size, and the curved direction of its edges, when it closes upon the aperture beneath, it not only perfectly covers it, but in a manner embraces the arytenoid cartilages. This formation of the cartilage best suits an animal who is plunging

his muzzle and his face into all manner of filth, and who, blowing into his food, in his peculiar manner, to stir up the very sediment of it, would otherwise get many an irritating and noxious subtance in his windpipe. The inferior cornu of the thyroid bone is comparatively more developed than in our other patients. But it is time to look into the the larynx.

The Chordæ Vocales.—When we look into the aperture between the arytenoid cartilages, we see a second mouth, or opening, into the trachea: it is likewise of a triangular form, stretching from the thyroid anteriorly, to the termination of the arytenoid cartilages posteriorly; the apex or point being before, and the wider part of the angle backward. These projections consist of folds of the membrane lining the larynx, and particularly of the membrane forming the inner covering of, or opposite to, the middle thyro-arytenoid muscles.

The Voice.—This membrane hangs loosely in the cavity of the larynx, and is put into motion by, or vibrates from, the impulse of the air that passes. The vibrations of the chordæ vocalæ, or vocal ligaments, are communicated to the surrounding air, and they spread in every direction until they reach the delicate membrane of the tympanum of the ear. That membrane responds to the motion without, and the vibration is carried on to the delicate expansion of the pulp of the auditory nerve, deep in the recesses of the ear: and so we have the sense or perception of sound. The quality or tone of the sound depends on the rapidity of these vibrations, and that is regulated by various circumstances, but, more than any, by the nature and size of the vibrating body. In a cord, and these are cords stretched across the larynx, it depends on the tenseness or shortness of the string, or on both combined. As I tighten the string of a violin, or as I shorten it, by running my finger down the board, I increase the number of the vibrations in the given time, and the acuteness of the sound; and so as I tighten the chordæ vocales, or diminish their length, I regulate the tone of the voice. The loudness of the voice depends on the force with which the air rushes by; the acuteness of the tone, on the shortness or tension of the string. You observe the acute angle which the chordæ vocales form; they are in contact with each other at the apex or point of the angle, and these cartilages, which I have described, are so connected with each other, and furnished with so many powerful yet delicate muscles, that the state of the chordæ is perfectly under the control of the will. The aperture between these vocal ligaments is called the rima glottidis, or opening of the glottis. By an effort (and if we will observe the manner in which this is effected in ourselves we shall be conscious of the effort) the animal can

make the opening narrower; he can bring the chordæ at the fore part of the rima glottidis into contact with each other, so that only the posterior part of the chord shall vibrate, and the vibrations will be rapid, and the tone acute or high. He relaxes the effort, and the ligaments recede from each other at the free part, and they vibrate through their whole extent, and the chord is lengthened, and the vibrations are slower, and the tone is graver or lower.

The different Sounds uttered by Animals.—This is nearly all that concerns us in our patients. The loudness of the tone depends on the force of the expired air; its acuteness or graveness on the shortening or lengthening of the chord. It is thus that the tone of the bark, or neighing, or voice, depends so much on the age or size of the animal. Compare the shrill bark of the puppy with the hoarser one of the adult dog; the high-toned but sweet music of the beagle, with the fuller and lower cry of the fox-hound, and the deep but melodious baying of the mastiff: the whinny of the colt, and the neighing of the horse.

The Language of Animals.—If I were speaking of the vocal organs of the human being, I should have to describe the modification which the sound undergoes as it passes along the fauces and through the mouth, until it becomes speech; I should have to trace the connexion between the varying form and shape of the fauces and the mouth, and the articulation of each individual letter of which language is composed.

Indeed, some such task might be required even of me, for every one of our patients has his peculiar—ay, and intelligible language. He who has long lived among horses will recognize the tone of delight, quickly rising into and terminating in a sharper sound; the strong and elevated tone when they are calling to or challenging each other, at a distance; the short and sharp expression of anger; the longer, deeper, hoarser, sound of fear; the murmur, almost as deep, but softer, of habitual attachment, and the elevated yet melodious tone of sudden recognition. As for a dog that I once had, I could carry on a conversation with him for many minutes, and one perfectly intelligible on both sides. The difference in the acuteness or graveness of tone I could describe, but the manner in which the same tone is made to express delight or aversion, pleasure or pain, I am not sufficiently conversant with the minute anatomy of the parts to be able to explain. Of the muscles by which the intensity of tone is governed I shall speak in my next lecture.

As the power of speech to any considerable extent seems not to have been required by the quadruped, nature probably has not given that exquisite sensibility to the organs of voice, nor

the powerful, yet minute and delicately-varied, action, to the muscles of the larynx which she has bestowed upon man; but in lieu of this he has given to almost all of them a conformation of the parts peculiar to each species, and pleasingly and usefully diversified the voice of each.

Peculiarities in the Larynx of the Horse.—In the horse there is placed over the rima glottidis, at its anterior extremity, and reaching an eighth or tenth part from the point of the angle, as is shewn in this preparation, a delicate, but strong, and somewhat loose membrane, by the vibration of which the act of neighing is probably performed. There is also in the horse, as you perceive, a capacious membranous sac on each side of the larynx: the opening being about the centre of the vocal ligaments and immediately above them; the sacs, taking a direction upwards and forwards, and capable of containing a small walnut, terminate in blind pouch. The precise connexion of this with the voice of the animal has never yet been satisfactorily explained.

In the Ass there is a similar membrane over the anterior angle of the rima-glottidis, and there are also sacculi laryngis of the same character, but smaller, and placed nearer to the front of the larynx.

The Mule possesses the larynx of his sire, and not of his dam.

The Ox has neither a membrane across the rima glottidis, nor any sacculi laryngis. His voice is, of all our domestic quadrupeds, that which is least capable of modulation.

The Hog.—In this animal the aperture between the arytenoid cartilages is small; the vocal ligaments take an oblique instead of straight direction across the larynx, so that the angle is at a considerable distance from the centre of the thyroid cartilage. They have also a curious slanting direction, the anterior angle being depressed, and the arytenoid portion elevated. There are also two sacculi, which seem to be concerned in the act of grunting.

The Dog.—The larynx of the dog is most singular and complicated. There are two distinct sets of vocal ligaments, the one above the other; and there are also two lateral ventricles of considerable depth. These circumstances may account for the loudness and compass of voice in this animal.

In the Cat the larynx is even more flexible than in the dog, and the rima glottidis more open; and there are two membranes, lying *under* the chordæ vocales, which produce the purring noise made by this animal.

A SERIES OF ESSAYS ON THE BLOOD, BLOOD-VESSELS, AND ABSORBENTS.

By Mr. R. Vines, *V.S., Royal Veterinary College.*

No. 2.

On the Functions of the first and second Class of Lacteal Absorbents.

In my former communication I endeavoured to shew, by a statement of *facts*, that in cases where the function of digestion became nearly or quite suspended from severe pain arising from injuries, and in which there was a very rapid absorption of the whole body going on, the *lacteals of the first class* sometimes ceased to absorb chyle, and consequently became much diminished in size, and contained only a transparent fluid; while, on the contrary, all the *lacteal vessels of the second class,* and which arise from the first, and also the minute or extreme branches of the arteries of the lymphatic glands, became *considerably enlarged in their size,* and were enabled to receive a considerable portion of *red blood* from the arterial system, and thereby assumed the *character and functions of real veins.* I stated that this important discovery had undergone, at the time it was first made, the inspection of Sir A. Cooper, Sir C. Bell, Mr. Brodie, and Dr. Barry.

For several years after the discovery of this curious phenomenon, as opportunities offered, I diligently attended the different slaughter-houses, and soon found that the fact, as regards the second class of lacteals assuming the same character as the *real veins,* not only occurred in horses suffering from pain, but likewise under a variety of other circumstances; such as when they were brought in to be destroyed in moderate condition, and in consequence of there being a great number of dead ones already on hand they were obliged to remain for some time before they were destroyed, and during that period were only allowed a very limited portion of food, and thus fell away rapidly in flesh. When they were destroyed I had a fair opportunity of examining a variety of specimens, wherein the second class of lacteals had assumed the same character as the *red veins;* and I noticed that this occurred much more frequently in *very wet and cold weather than otherwise;* and was most distinctly seen in those horses which, a short time before they were destroyed, had been in a moderate state of condition. I likewise observed that this singular appearance of the lacteal vessels varied very much, according to the quantity of fat found in the mesentery. In those

that were in moderate condition, and where there was a large portion of adipose substance, and in which the absorption appeared to have been going on in a very rapid manner, the second class of lacteals appeared of a similar character to those which I have already treated of, and were seen as *large red veins* arising from the lymphatic glands, and not only *ramifying around, but, for a considerable distance down the mesentery, then turning suddenly upon themselves, and proceeding in a straight direction toward the spine*, to terminate ultimately in the receptaculum chyli and thoracic duct.

In others, when destroyed under similar circumstances to the former, but in a much lower and weaker state of condition, with only a very limited portion of fat in the mesentery, the second class of lacteals, &c. presented a similar appearance to what has been stated, with the exception of the lacteal vessels and lymphatic glands not being, by a considerable degree, so large in size, nor the fluid contained within them of so red a colour.

From what has already been stated, it is evident that the lacteals, as they are termed, are also a *part of the true venous system;* and that they perform, when requisite, other important offices in the animal economy besides that of absorbing chyle from the surface of the intestinal canal. In short, it has been proved, by minute injections, that they also arise from the transparent or most minute branches of the mesenteric arteries which ramble in the peritoneal covering of the intestines, and, no doubt, from its surface also; and, if such be the case, they not only perform the office of absorbing a part of the peritoneal secretion, but also that of returning the white transparent or colourless blood from the seriferous arteries of all those parts to which they belong; and which is proved by the first class of lacteal vessels being found to contain a transparent fluid when the function of digestion is suspended, and there is no chyle for them to take up.

It, therefore, appears, that the lacteal absorbents are capable of performing four distinct functions; first, the absorption of chyle, or new white blood from the surface of the intestines; secondly, that of returning the white or colourless blood from the seriferous arteries of the intestines; thirdly, that of absorbing a portion of the peritoneal secretion; and fourthly, as in very extraordinary cases of rapid absorption, in which the function of digestion is nearly or quite suspended, that of becoming considerably enlarged in size, by which they are enabled to receive a large portion of *red blood* from the arterial system, and thus proving them to be of a *similar nature to the real veins;* and not only this, but also proving, to a demonstration, that if, in cases of very rapid absorption of the mesentery, or of a part or the whole of

the body, it be requisite for the second class of lacteal vessels to *assume the same character as the red veins, and absorb at the same time, these red veins not only are capable of removing or absorbing, but do remove and absorb a much larger portion of the body* than *either the lacteals or lymphatics;* the latter of which, according to the theory of Mr. J. Hunter, have usually been considered as the sole absorbents of the body.

On the Discovery of the Lacteal and Lymphatic Vessels.

We are told that Harvey discovered the circulation of the blood in the year 1616, although he did not publish his discovery until 1628. In the previous year (1627), Aselius, Professor of Anatomy at Pavia, discovered the lacteal vessels in the mesentery of brutes, and which had already been noticed in the writings of Hippocrates, Galen, &c., but without their attempting to give any description of the real nature or use of these vessels; consequently this subject remained in a state of darkness and doubt until the time of Aselius, who, on opening the abdomen of a dog, to observe the motions of the diaphragm, saw a number of white filaments on the mesentery, which he at first mistook for nerves, but on puncturing one of them, he found it to discharge a white milk-like fluid. He immediately and eagerly claimed the discovery of a new set of vessels, a fourth kind; for, prior to this time, the nerves were also considered as a system of vessels.

Aselius not only discovered the lacteal vessels, but also investigated and announced their peculiar office; namely, the absorption of chyle from the intestinal canal, and the conveyance of it into the blood.

For some time after the alleged discovery of these vessels, they were considered as fictitious by the majority of anatomists; and the doctrine which had been taught by Hippocrates, Galen, and other writers, was still believed, viz. that the mesenteric veins absorbed the chyle from the intestines, and conveyed it to the liver, where it was converted into red blood. Even for some time after the discovery of the lacteals in the human subject, in 1634, by Veslingius, and who attempted to give a drawing of them, a portion of the old system was retained, and it was affirmed, that the lacteals conveyed the fluid which they absorbed from the intestines into the liver, and that the chyle was there converted into red blood. In the year 1651, however, Pecquet, in dissecting a dog in order to observe the lacteals, discovered the lymphatics, and traced them to the thoracic duct: this, in point of fact, had been observed in the horse, by Eustachius, a human anatomist, in the year 1563, but, from his not having

any idea of the absorbent system, he called it "*vena alba thoracis,*" and considered its function to be that of nourishing the thorax. Some authors say, that Olaus Mudbeche, a Swedish anatomist, first discovered the lymphatic vessels; while others maintain that it was Thomas Bartholine, a Dane.

[To be continued.]

ON INFLAMMATION OF THE JOINTS, PARTICULARLY IN SUCKING FOALS.

By Mr. R. Pritchard, *V. S., Wolverhampton.*

On looking over the first volume of your publication, I observed, at page 221, an account of that species of inflammation to which the joints, more especially, of sucking foals are subject, by M. Benard, Veterinary Surgeon at Boulogne. This destructive affection of foals, in which the joints most commonly are attacked with acute inflammation, and which, by metastasis, moves from one joint to another, and from one limb to another, I have several times witnessed; and I think, with M. Benard, that it arises from colts sucking the mares when they return from work; from some change in the milk probably, produced by the exertion of the animal keeping up for several hours together increased action in the circulation. Mares, after perspiring freely at their work, return to the stable, and are frequently allowed to suckle their foals when they are hot. I am led to attribute all to this as the exciting cause, from the circumstance of observing fine foals, the produce of healthy sires and dams, so affected; and, in each case that has come under my notice, the mares had been worked. The joint attacked enlarges rapidly, from effusion of lymph into the surrounding cellular membrane of the joint; the swelling is exceedingly firm to the feel, so much so that one would be led to conceive the joint never could possibly be again restored. The joint is completely fixed, as though it was anchylosed by ossific deposition; but in a few days the joint probably becomes as perfect as it was prior to the attack, and some one of the joints, perhaps in the opposite extremity, becomes the seat of the disease, and suffers in the same manner. Should the case terminate favourably, each joint attacked generally regains a perfect state, not the least enlargement remains; but most frequently the colt is destroyed by long-continued irritation exciting inflammation in those organs more immediately engaged in life. The pain and suffering is of the most excruciating description, particularly when the inflammation proceeds in the synovial cavities to such

an extent that the capsular ligaments rupture, making a direct opening into the joint by a corresponding ulceration forming through the surrounding effused lymph and integument. The best mode of treatment consists in the frequent application of fomentations of warm water to the inflamed joint. The colt should be immediately taken from the mare on the appearance of inflammation in the joint, and supported with fresh milk from the cow; the mare should discontinue her work, and have her milk well drawn by hand for three or four days, when, if the colt is doing well, he may again suck on the mare; but the colt should not be allowed to draw milk from the mare while febrile symptoms continue, or inflammation and swelling exist in the joint. Copious local bleedings, when the pulse is quick and hard, are often attended with much benefit; and if the bowels are costive, which is commonly the case, a quart of thin oatmeal gruel, as a clyster, should be administered once a-day. Sometimes the cow's milk acts as a laxative: should it not do so, a drachm or a drachm and a half of aloes in solution may be given according to the size and strength of the colt. M. Benard directs the treatment of the colt through the medium of the mare; but if the colt is diseased by an unhealthy state of the mare's milk, it certainly must be best to move the colt from the mare until there is a probability that the milk has changed, and again become of a healthy quality. Many colts would recover, provided they were attended to on the first appearance of disease. Farmers are apt to neglect an early application to the veterinary surgeon: a joint of the foal inflames, swells, and is exceedingly painful for three or four days; it subsides, and another joint suffers—the mare continues to work, and the foal to suck—the owner waits, in hope that it will disappear altogether and save expenses, until evident symptoms of great danger prompt him to get assistance, and then he discovers he has delayed it too long: the surgeon finds the colt in the highest state of irritative fever, and death shortly puts a period to its sufferings.

On the 17th of April, 1832, a sucking foal, a month old, whose dam was employed daily at plough, the property of Mr. G. Strongitharm, near Walsall, Staffordshire, had inflammation, swelling, and pain occur in the knee of the near fore leg. In three days it subsided, when the opposite knee began to swell, which became exceedingly painful, the colt bearing no weight upon it: the mare continues at work, and the colt sucks when she comes to the stable as usual; the inflammation and swelling abated, and the colt again walked tolerably sound on the leg. On the 27th, the near hock swelled, became exceedingly hot and painful, producing considerable fever; the throat was swelled,

with difficulty in swallowing. Mr. S. requested my attendance. I found the pulse quick and hard, mouth hot and parched, bowels costive; the colt straining considerably to dung; the joint of the hock in the near hind leg very much swollen, and hard to the feel; the femoral vein distended with blood; the colt bears no weight upon the limb, and constantly lies down. I opened the femoral vein, and drew, by a copious stream, two quarts of blood: after pinning up he appeared rather faint, and the pulse was much altered in character. I then gave aloes in solution ʒj, and thin oatmeal gruel one quart, as a clyster; poultices of bran applied warm to the throat and hock, to be frequently renewed; cow's milk to be given as food.

28*th*.—The bowels are open, and the colt appears better.

29*th*.—Throat quite relieved, and the swelling in the hock proceeding to suppuration; pulse more irritable than yesterday; the joint evidently more painful; takes the cow's milk freely: bowels in a good state.

30*th*.—The abscess in the joint has broke, and discharged a large quantity of sanguineous fluid, mingled with pus; the irritative fever much increased since yesterday, from which the colt is rapidly sinking: late in the evening he died.

The only portion of the body reserved for my examination was the diseased limb; on inspection of which I found a direct communication between the external wound and the cavity of the joint, formed by the tibia and astragalus, this cavity communicating with the bursæ above. The synovial membrane of the joint was like crimson velvet; the articular cartilage was rapidly disappearing by absorption, the surface appearing like numerous pin-holes. The lower and posterior part of the tibia was denuded of its periosteum, its epiphyses gorged with blood, looking, when cut, more like muscle than imperfectly formed bone.

Messrs. Editors,—I am sorry you tell us nothing about the Veterinary Medical Society, as was your custom. Your account of the meetings of that society used to form one of the most interesting portions of THE VETERINARIAN.

*** There is an important error in the printing of my paper on Ophthalmia, in the last No. for July, at page 384, which you will observe, on a reference to that communication, is thus written, and should have been printed:—" 'In proof of the stable malaria,' says the Professor, 'it would be a phenomenon to see ophthalmia in a horse that had been kept wholly at grass:' In reply to which I observe, it would be equally rare to find a horse five or six years old that had been so kept, and whose services had been exacted in the usual way, *that had not had ophthalmia*."

A SKETCH OF THE NATURE AND TREATMENT OF FARCY, AS TAUGHT AT THE ST. PANCRAS VETERINARY SCHOOL.

[We comply with the request of several of our correspondents; and as Mr. Youatt's Lecture in the present number is principally anatomical, we give a sketch of the opinions taught in other schools on a very important subject of a practical nature, treated of by him in our number for May.—Edit.]

Farcy and glanders are considered to be essentially the same, as the one so frequently terminates in the other. It is no objection to this that the first admits of remedy, and the second is incurable; for a poison may be fatal when attacking one tissue, or acting on one constitution, but not in another stage of its action, or attacking another tissue. Farcy has been produced by glanderous matter, and glanders by the matter of farcy; and glanders much oftener than farcy, when an animal has been inoculated with the virus of farcy.

Farcy is a specific inflammation of the superficial absorbents. The buds are occasioned by the matter being arrested at the valves of these absorbents. The absorbents at those parts, at which the skin is thinnest, are most susceptible of farcy; thus it is oftenest seen on the inside of the thigh, and about the muzzle.

In the majority of cases, these buds or knots will suppurate, and a chain of ulcers will appear following the course of the veins, because the absorbents accompany the veins: at other times the buds will continue enlarged and hard for a very long period. Sometimes the absorbents of a particular part are diseased, and the inflammation rapidly proceeds, and large tumours and abscesses are formed; the virus is thus discharged, and the animal gets well; and when the buds continue hard and scirrhous, the horse recovers, or at least seems for awhile to do so, for the disease too often breaks out afresh at some distant period. This relapse is generally fatal.

Occasionally, after the indurated knots have continued for some months, a discharge begins to appear from the nostrils, and then farcy is assuming the form of glanders. In old horses it is often connected with or produced by a diseased state of the lungs.

Farcy, although a contagious disease, is oftenest generated in the system. The causes which first produced it may give birth to it a second time, if an animal is exposed to their influence, and

is predisposed to be acted upon by that influence. Smallpox may be generated although the child is shut up in a place where smallpox had never before existed; and many a contagious fever is generated in prisons and on shipboard, where such fevers had never before prevailed, and so horses may become farcied where farcy was never known before.

Heated and foul air is the prevailing cause of farcy; the animal being forced to breathe over and over again the atmosphere polluted by the emanations from the urine and the dung, and empoisoned by the change which it undergoes in the lungs. Farcy was never seen in a horse that had wandered from his birth in a forest or on a common.

Heated and polluted air will likewise act as a predisposing cause; it will render an animal more likely to receive the disease by contagion than he otherwise would be, but it acts more as an exciting cause. A horse worked excessively at one time, and then left for days and weeks without exercise; or suddenly removed from cold to heat, or heat to cold, or from poor to plentiful feed, will often become farcied; and some diseases, as grease and strangles, have terminated in farcy. These, or other causes, operate so powerfully, that farcy is scarcely ever produced by contagion: there is not one horse in a thousand that becomes farcied by contagion, and yet it may be and is produced by artificial inoculation. These causes produce different effects on different animals: this empoisoned air, which is the source of farcy in the horse, is the origin of husk in the pig, and of roup in the fowl.

The deeper seated absorbents are not susceptible of farcy; and even when the leg of the horse is often more than double its usual size, it is still the inflammation and enlargement of the absorbents of the skin, or the immediate subcutaneous tissue.

If farcy is more easily cured than glanders, it is because we can more easily get at the seat of the disease in the former than in the latter; and, beside, the seat of glanders is a secreting membrane, and although a great deal of blood is sent to it, the blood is principally employed in furnishing the secretion: ulceration of such a part is with more difficulty healed than if the blood could be employed in the formation of new and healthy granulations.

Farcy, however, is not so often cured as some people imagine, for in the majority of cases it returns, and generally connected with glanders, and is then inevitably fatal.

In the treatment of farcy, internal medicines are of far less consequence than local applications. Mr. White, of Exeter, succeeded in producing farcy by inoculation with the matter of farcy. His object was not so much to ascertain whether this

could be done, as to discover whether the progress of farcy could be arrested by local applications when the corded and knotted absorbents began to appear. He severely applied the cautery to the farcy bud as soon as it appeared; he destroyed the part, and the virus which was contained within it, and he arrested the progress of the disease without any assistance from internal medicine. The practitioner should therefore endeavour to destroy the virus as soon as it is arrested at the valve, and before it could be absorbed, or inflammation produced, and the constitution affected. It seems to be a law of many of these contagious diseases, that the virus will remain a considerable time inert and innocuous on the place on which it is deposited. If, two months after a man has been bitten by a mad dog, and no symptom of hydrophobia having appeared, the part is completely excised, this dreadful disease will not appear: so the farcy bud may be destroyed with the probability of success, while the disease is purely local, and no symptom of constitutional derangement has taken place. The cautery should, therefore, be early and freely applied wherever a farcy bud can be detected, and with sufficient severity to destroy the tumour, with the virus which it contains. To this may be added, the application of blisters to the portion of skin affected. The irritation produced externally will abate the inflammation of the subcutaneous tissue, and the absorbents ramifying through it.

The administration of internal medicine may, however, be had recourse to, whether as having any supposed effect in arresting the progress of contamination, or supporting the constitution against the debilitating effect of the disease. That on which most dependence can be placed will be a combination of sulphate of copper, in doses of a drachm daily, with calomel to the extent of a scruple, with two drachms of the common turpentine. The diuretic may hasten the progress of the virus through the absorbents before the constitution has been affected; and regular and moderate exercise may conduce to the accomplishment of the same purpose.

THE NATURE AND TREATMENT OF FARCY, AS TAUGHT AT THE VETERINARY SCHOOL AT ALFORT.

[Extracted from Professor Vatel's Elements of Veterinary Pathology.]

Inflammations rarely acute, and ordinarily chronic, of the lymphatic ganglions and vessels, and those altogether obscure, of parts where the existence of these ganglions and vessels is even doubtful, designated in the horse, the mule, and the ass, under the name of farcy, have been sometimes observed in the ox,

They have a great analogy, and perhaps a perfect identity, with those diseases in man designated under the name of scrofula.

The predisposing cause of farcy is the predominance of the lymphatic system.

Irritations in some part of the frame, slightly marked but long continued,—those which remain during the recovery from diseases which have existed a considerable time, or have been incompletely cured,— those which follow sudden change of situation, food, or kind of work,—and especially those of the digestive canal, caused by the use of fodder which is damaged, dry, damp, mouldy, musty, or of unwholesome water, &c.,— frequent stoppage of the perspiration,—living in damp and cold stables—cold rains, immersion in water, &c., are the most ordinary determinating causes.

Although always of the same nature, farcy shews itself exteriorly under several different aspects; under the form of *buds* or buttons, cords or swellings, more or less extended.

The first form.—The buds are hard, indolent, and frequently rounded; detached from the cutis and other parts; entirely formed interiorly of a hard, fibrous, very close tissue, as white as milk; crepitating under the bistoury; appearing beneath the skin, and remaining during a longer or shorter time perfectly stationary, then beginning to soften at the centre, and to become adherent to the skin; they afterwards contain a pultaceous matter, yellow, or of a dirty white, slightly tinged with red. They become completely softened, and are converted into a white matter, thick and homogenous, the consistence of which is sometimes caseous, sometimes puriform, and sometimes analogous to that of thick jelly.

Under the name of farcy buds are also designated those which, instead of being under the cutaneous tissue, rise above the skin and cause it to become diseased. Much smaller than the others, they much sooner run on to abscesses, discharging an ichorous serosity; and, in fine, which do not so easily fill up or cicatrize as the others.

Second form.—An elongated tumour, formed by a white induration, more or less cylindroid, frequently detached from the skin and the subjacent tissues, the size of which varies, and the direction of which is usually that of the principal lymphatic vessels of the part, and more or less indolent. They present here and there enlargements, more or less determined, which are so many farcy buttons superadded to the body of the farcy cord. This cord is formed externally of a hard dense white tissue, sometimes even fibrous, and presents in its interior, in its softened state, a canal containing the pultaceous matter of farcy. The enlargements of this cord become abscesses, like the separate buds,

often communicating with the interior of the cord, and thus permitting the suppurated matter to run out.

Third form.—A swelling usually indolent, more or less voluminous, more or less extended, appearing on some part of the body, and most particularly on the extremities or the chest. The coat appears thicker—it is dull, rough, and bristling. The skin becomes thick, more or less hard, tense, dry, and sometimes buttony and uneven, and then tumid, smooth, and glistening. Very soon little spots (inflammations of the skin) isolated, and more or less numerous, form on different parts of the surface; in others, little lymphatic or sebaceous glands form themselves into abscesses, and discharge an ichorous fluid, often so acrid as to corrode the parts over which it runs. The edges of these superficial ulcers are irregular, pale, and everted. The skin, every where irritated, becomes cracked in some places and disorganized in others; then a great quantity of yellowish viscid fluid is discharged, which, drying on the surface, irritates it still more. Very soon there appear on several points cancerous sores, corroding ulcers, and perfect cutaneous cancerous wounds. Beside this, the buds and cords are sometimes observed, especially about the course of the subcutaneous veins, which suppurate, become abscesses, approach nearer and nearer, become confluent, and concur to augment the ravages of the disease and the disorganization of the parts.

Whatever be the appearance under which the farcy affection presents itself, the flow and accumulation of fluid, in a word, the development of the swelling, is sometimes accompanied by tension, heat, and local pains, more or less severe, and which determine, in irritable subjects, a greater or less marked fever of reaction. But very soon the symptoms of sympathetic reaction insensibly disappear, the heat and pain diminish, the disease remains for a longer or shorter space of time perfectly stationary, during which, nevertheless, an intestine process, accompanied by a return of the heat and local pains, and sometimes also by a general febrile reaction, determines, more or less promptly, the slight or more perfect softening of the tumour. This, at length, opens of itself, often on the exterior, and continues to discharge during an indeterminate period; but, in general, before this, the disease, affecting progressively different parts of the body, has produced a universal diathesis, almost always accompanied by a hectic fever, which soon destroys the patient.

When the farcy buds or cords are developed on irritable animals of a sanguine temperament, or in a part abundantly supplied with capillary arteries and veins, or with numerous nervous fibres, as the lips, nostrils, or eyelids, they are quickly softened,

and the suppuration is almost as rapid. But when, on the contrary, these buds or cords are formed on subjects in whom the nervous and sanguine systems are far from being the predominant ones, or on parts where the skin, soft and loose, covers tissues but slightly vascular, such as on the superior region of the chest, the breast, the flanks, the croup, on the thighs, the legs, &c., the morbid symptoms are much longer in appearing.

There are sometimes found in the interior of deeply-seated farcy buds a perfect encysted abscess containing a matter produced by suppuration similar to that of the ordinary farcy buds. This abscess may remain for a long time, and frequently until the death of the patient, without appearing to sustain any manifest change.

Opinions are still divided as to the contagious or non-contagious nature of farcy. While we wait for new proof of its non-contagion, it will be prudent to separate the healthy animals from those diseased.

The means adapted to diminish the irritation of the lymphatic, and to recover to the sanguineous system the predominance which it has lost, are the most rational ones to make use of. Experience proves that air pure, dry, and often renewed, the use of light coverings, frequent and thorough hand-rubbing, wholesome food, and moderate exercise, are the things which may be considered as preservatives, and as auxiliaries in promoting a cure. To this treatment may be added the use of bitters (gentian, hops, wormwood, &c.) and other preparations of the same nature, given in doses proportioned to the state of the stomach.

Sulphurous and antimonial preparations combined with bitters, and a decoction of the great hemlock, have occasionally been administered with much success in cases of farcy. These remedies, which have often failed, ought only to be applied to those subjects whose mucous membranes are pale, the skin cold, the action slow, and who are apathetic and little irritable. The hydrochlorate of barytes may also be made use of in these cases, and which is used under the same circumstances to combat the scrofulous diseases of the human species.

Whatever may be the result of the use of some of these drugs in the treatment of this affection, the indication of cure ought to be, *first*, to combat the irritation which accompanies farcy eruptions by general bleedings, lotions, and emollient anodyne poultices placed on the tumours, and by restrictions of diet suitable to the state of the patient: and, *secondly*, to remove the induration of the tumours by discutients, such as mercurial ointment, ointment of hydriodate of potash, or that of protochloruret of mercury.

The tumours having become abscesses, ought to be opened by means of a sharp instrument, and cauterized with the caustic potash, or some other escharotic, even if the skin is irritable. The abscess should be opened with the red-hot iron, if the parts are not painful. Some proceed to the removal of the cyst with the bistoury, if the tumours or abscesses are not too large; the wounds are then covered again with pledgets of tow. The wounds are kept clean by means of some stimulating liquid; such as water acidulated with vinegar, the acetate of ammonia, a solution of the sulphate of potash. If the flesh is pale and fungous, it should be repressed by caustic or the actual cautery, or be removed by the knife.

CASE OF CHORDS, OR CHRONIC TETANUS.

By Mr. Joseph Tait, *V.S., Portsoy, N. B.*

June 1, 1832.—A mare, four years old, was brought to my stables, the property of a neighbouring farmer, which had been ill for some days previously: she exhibited the following symptoms; her nose poked out, tail somewhat elevated, fore legs a little set apart; the muscles of the neck, back, and loins contracted, and her jaws rather stiff; pulse 45. Grass was offered her, for which she shewed some eagerness, but could not masticate it, and it dropped from her mouth. The man who brought her said she had been much in the same state for some days, but he thought she was getting rather worse.

Treatment.—I gave her a laxative ball, on the point of a cane, and blistered her along the whole of the spine; comfortable clothing was put upon her, her limbs were bandaged, and a bran mash offered her.

2d.—Had eaten a little of the bran; blister doing well, bowels a little relaxed; has a peculiar way of lifting up her off hind leg when moved about: a little more fresh bran was offered her, a part of which she took during the day.

3d.—Bowels rather costive; laxative ball given, and some clysters; she continues much in the same state as yesterday.

4th.—Had fallen in the course of the night, and could not rise, and had rolled about in the box, and bruised some parts of her head; got her up, when she seemed rather worse: pulse 56. Bled to the amount of two quarts and a half; neck very stiff, can scarcely turn her head; blister dressed: takes a little bran, and bowels somewhat relaxed.

5th.—Much in the same state as yesterday; takes a little bran.

6th.—Has fallen again in the night; got her up; gave her a laxative ball, and blistered her along the neck: she has eaten a little grass and a mash of bran to-day.

7th.—Rather better; stiffness has left her off hind leg; pulse 45: eating a little bran and grass, and looks more lively.

8th.—Continues better; stiffness of the neck somewhat relaxed; takes bran and grass rather greedily, and has now regained the power of mastication pretty well.

9th.—Still better; laxative ball given; blisters dressed: eats her bran and grass tolerably.

10th.—Much better; bran and grass given same as yesterday; bowels relaxed, and the contraction of the muscles has now, in a great measure, disappeared.

11th.—Continues still improving; and, as the blistered parts are nearly healed, turned her out to a grass park, where she ate from the ground with apparent ease, and continued in this manner gradually improving till the 3d of July, when the owner again commenced working her, and she is now perfectly well.

MEDICAL EMPIRICISM—PHYSICKING WITH A VENGEANCE.

By the same.

A SHORT time ago, I was requested to attend a valuable young colt, belonging to a farmer at a considerable distance from this place, who, thinking that the animal had only a slight cold, had sent for a pretended *Doctor* in that quarter to see him, who had bled the colt to the amount of six quarts, and given him a *cordial ball*, as he called it, composed of *only* 3 oz. of Barb. aloes, instead of 6 oz. as he had intended; but, unluckily for the *Doctor*, he did not get the full dose, as the druggist had no more. The event proved that there was fully enough without the additional quantity, as it brought on violent superpurgation; and when I saw the colt it was evidently hastening to his long home. He died in the course of the same night; the *Doctor* affirming that the animal had been lost in consequence of not getting the quantity of medicine prescribed by him.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XVIII.

On the Muscles, Nerves, Bloodvessels, and Lining Membrane of the Larynx.

THE beautiful mechanism of the larynx, which occupied our attention in the last lecture, is governed or worked by a somewhat complicated system of muscles. If in describing them I should vary, and that very considerably, from the account given us by our best veterinary anatomists, I must refer you to the dissections on the table, and particularly to a very elaborate one by my talented pupil and friend Mr. Simpson, as my apology.

Action of the Muscles of the Larynx.—The action of the muscles of the larynx is principally confined to the dilatation or contraction of the openings into the trachea, whether between the arytenoid cartilages or the vocal ligaments, and thus adapting them to the varying purposes of respiration, and the formation and modulation of the voice.

As, in describing the cartilages of the larynx, I commenced with the cricoid cartilage, placed at the base of the machine, so we will first consider the muscles of that cartilage.

The Crico-arytenoideus Posticus.—The first pair of muscles that presents itself, is attached to the spine of the cricoid cartilage, and to the whole of the roughened depressed surface on either side, and completely covers the posterior surface of the cartilage.

The Posterior-Crico-arytenoid Muscles appear, when first observed, to consist of two pairs, with distinct origins and insertions, and a different direction of the fibres of each. It is, however, so difficult to dissect the one from the other, that veterinary anatomists have agreed to consider them as one pair. If I were disposed, and I almost am, to separate them, I should speak first of the *inferior* portion, arising by a fleshy body from the base and side, and lower part of the spine, and surface of the cricoid cartilage on each side and the fibres taking a direction upwards; the muscle is inserted by a tendinous expansion into the summit of the tubercle at the base of the spine of the arytenoid cartilage. The fibres of the *superior* portion, arising from the upper part of the spine and general surface of the same cartilage, take a direction upwards and obliquely outward, and are inserted by a thick fleshy attachment into the inner side of the same tubercle. It

is, however, difficult to establish a perfect separation between them.

They evidently possess great power, for they are thick, and many tendinous fibres mingle in their composition; but, inserted at the very base of the arytenoid spine, they act with considerable mechanical disadvantage. Adhering throughout the whole of their development to the cricoid cartilage, their action must be very limited. Their function is evident—to elevate and to draw backward the arytenoid cartilages; but, acting upon them in an oblique direction, these cartilages are opened while they are raised. The glottis is also dilated, and the vocal ligaments tightened.

This muscle is not so large or so powerful in the ox. In the swine it is more powerful, and has a greater proportion of tendinous substance in its composition.

The Crico-thyroideus.—Placed laterally at the base of the larynx on each side, occupying the whole of the side of the cricoid cartilage, and filling the depression in it, and also attached to the side of the base of the thyroid cartilage, from the inferior corner posteriorly to the interposed ligament between the alæ of the cartilage anteriorly, and running along the hoop of the cricoid ring, yet more anteriorly, is the crico-thyroid muscle. It approximates or brings together the two cartilages, or, according as either of them is considered to be or made the fixed point, it depresses the thyroid or elevates the cricoid; and, in either case, separates the arytenoid cartilages and relaxes the vocal ligaments. The trachea itself is also shortened by the action of this muscle, and thus the voice is, in some degree, affected. This muscle is also of small size in the ox, and more developed in the hog.

The Crico-arytenoideus Lateralis.—In order to bring the next muscle belonging to the cricoid cartilage fully into view, we must detach one side of the thyroid cartilage; and there, inserted into the anterior side of the tubercle at the base of the spine of the arytenoid cartilage, and arising from the upper edge of the side of the cricoid cartilage, and extending as far as the interposed ligament of the thyroid cartilage, is the *lateral crico-arytenoid muscle.* This is, in some measure, an adjuvant to the crico-arytenoid, and also an evident antagonist to its too powerful action. By drawing forward the base of the arytenoid cartilages, it brings forwards and elevates the upper part of them, and thus separates them, and also dilates the rimæ glottidis, and relaxes the vocal ligaments.

And now, having this portion of the larynx under the thyroid cartilage exposed, we will examine the other muscles which are here brought into view. I use the term in the plural number;

for although no veterinary anatomist that I have met with, English or foreign, describes more than one, here are evidently three. A very slight dissection will bring them plainly into view. They are nearly parallel. You observe that they all spring from the anterior edge of the arytenoid cartilage. As we are travelling upward, I will take the lowest first.

The Ligamento-arytenoideus Inferior.—It arises from the anterior face of the tubercle of the spine of the arytenoid cartilage within the lateral crico-arytenoid muscle. It is not connected with the cricoid cartilage, and only with the thyroid by the loosest cellular membrane, but pursues its course anteriorly, closely bound to the lining membrane of the larynx by denser cellular substance, and, running parallel with, and nearly opposite to, but a little below the vocal ligaments, is inserted into the lower part of the oblique edge of the crico-thyroid ligament, or the ligament interposed between the alæ of the thyroid cartilage.

If we consider this muscle as contracting at its centre, the form of the larynx will be somewhat altered; its posterior and anterior portions will be evidently approximated, and the elastic yielding nature of the ligament, and the moveableness of the arytenoid cartilages, will permit this to some considerable extent; and thus the vocal ligaments will be relaxed, and the rima glottidis widened and shortened. If the arytenoid cartilage is the fixed point, the interposed ligament will be drawn a little backwards, and the lips of the glottis will be somewhat opened anteriorly at their apex or acute angle, and thus more air will be thrown on that membrane which I have described as placed over the point of the angle, and connected with the act of neighing. Accordingly, as the whole, or only a portion of this membrane is affected by the opening or closing of the angle, the neighing will be more rapid or distinct. If the membrane is the fixed point, we have an adjuvant to the muscle last described, drawing forward the base of the arytenoid cartilages, and thus bringing forward and separating the upper edges.

The Ligamento-arytenoideus Medius.—This arises from the spine of the arytenoid cartilage, a little above the tubercles, and after pursuing the same course as the last along the external face of the lining membrane, but a little higher and above the vocal ligaments, and also being very loosely connected with the thyroid cartilage which covers this muscle, it is inserted into the central thickened portion of the same ligament, just above the inferior. The office of this muscle is clearly the same as the preceding. When, however, we consider their situation, tied down upon the lining membrane of the larynx, and the one a very little above, and the other as short a distance below the vocal ligaments, we

can scarcely help connecting their function with that of the ligaments. They would seem to be the moving power by which these ligaments are chiefly influenced. The other muscles act directly on the cartilages of the larynx, and only indirectly on the vocal ligaments; these appear to act directly upon them: they are bound down upon the very membrane of which these ligaments are a duplicature; they influence the length and the tenseness of the ligaments, and are the principal agents in effecting all those changes on which the character of the voice depends. These two muscles are not found in any other domesticated animal, because there is no interposed ligament between the alæ of the thyroid cartilage for their insertion.

The Ligamento-arytenoideus Superior (the thyro-arytenoideus of Mr. Percivall and other anatomists).—This pair of muscles, lying above the two which I have just described, arises from the upper and thinner portion of the spine of the arytenoid cartilage, and, taking a course parallel to that of the others, is also connected with the lining membrane of the larynx, and with the interposed ligament, and at length inserted near the summit of the interposed ligament. This muscle may assist in the last function which I have attributed to the preceding ones, for it likewise is connected with the lining membrane of the larynx, but it is situated further above the vocal ligaments: another office, however, is discharged, supposing the thyroid cartilage to be the fixed point, namely, to separate the arytenoid cartilages, and so enlarge the opening into the larynx.

The Elasticity of the Cartilages.—All these muscles are more or less combined in the performance of one function — the enlargement of the opening into the larynx, or of that between the vocal ligaments into the trachea. It is a very complicated piece of machinery, for the importance of the offices to be discharged would justify any intricate combination of power and action. There is, however, another duty to be performed—the bringing together again of the cartilages and ligaments, and the reduction of the apertures to their natural dimensions; and we have, in the construction of the machine, an agent so powerful as to require very little aid in effecting this purpose. The larynx is composed of cartilage, a substance highly elastic, and exhibiting the very perfection of elasticity. The cartilages yield to the force impressed upon them; but, that force removed, and the muscle ceasing to act, they return by their inherent elasticity to their natural situation and form. This principle is the antagonist power which stands instead of complication of muscular action.

The Arytenoideus.—There is, however, one little muscle to complete the closure of these apertures, or rather to bring them

nearer together than they are found to be in a state of inaction, and that is the *arytenoid muscle.* They cover the posterior part of the arytenoid cartilage,—arising on either side from the spine of the arytenoid cartilage,—occupying the whole of the posterior surface of that spine, filling the depression at the base of it; diminishing in width as the cartilage diminishes; in the centre, where the cartilages are connected together by cellular membrane, becoming thinner, and exhibiting many tendinous fibres; enlarging again with the enlargement of the cartilage on the other side, and so extending from the spine of one of the cartilages to that of the other, and occupying, as I have said, the whole of their posterior surface.

The function of this muscle is immediately evident; it presses the arytenoid cartilages nearer together, and so closes the aperture between them, and also that between the vocal ligaments. It is a muscle of no great power, but it is sufficient for the purpose. It is an antagonist to all the dilators, and it effects the farther object of contracting these apertures even within their natural dimensions.

The Thyro-arytenoideus.—This is a very short pair of muscles, extending from the middle of the inside of the posterior edge of the thyroid cartilage to the arytenoid muscles, among the fibres of which it is lost. Its function is to approximate the thyroid and cricoid cartilages, and to limit the action of the arytenoideus muscle.

The Thyro-epiglottideus.—This is a pair of somewhat expanded but thin muscles, climbing up the inside of the thyroid cartilage, and, opposite to the hyo-thyroideus, inserted into the base of the epiglottis, which is thickened, and tuberculated, and roughened for the purpose. They are weak muscles, and act at mechanical disadvantage. They assist in depressing the epiglottis, in order to cover the aperture into the larynx.

The Aryteno-epiglottideus is another pair of small muscles, running from the lower and anterior angle of the arytenoid cartilage to the slips of cartilage at the base of the epiglottis. Their action is doubtful; they seem to contribute to the support of the epiglottis, by connecting it more with the other cartilages, and keeping it steady in the extensive motion which it undergoes when closing the aperture into the trachea.

Other Muscles common to other parts.—These are all the muscles peculiar to the larynx. But there are others connected also with other parts which have considerable influence in the proper performance of the functions of the larynx. The *hyo-thyroideus* was described, in the 15th lecture, arising from the whole of the inferior border of the body of the os hyoides, ex-

tending over and attached by cellular substance to a considerable portion of the side of the thyroid cartilage, and inserted into the tubercle at the postero-inferior portion of that cartilage. Its office is to raise the thyroid cartilage, and with it the larynx; or to depress the os hyoides, accordingly as we consider the one or the other the fixed point. The *hyo-epiglottideus* I also described in that lecture, as being the frænum, or stay of the epiglottis; extending from the back of the epiglottis to the base of the spur of the os hyoides; sufficiently yielding to suffer the cover of the aperture into the larynx to be depressed when the pellet of food passes, assisting the inherent elasticity of the cartilage in raising it again immediately for the purpose of respiration, and, with this exception, keeping the aperture always open that the animal may breathe freely. This muscle, you will observe, is bifurcated in the ox, and the two hyoideal origins are found near, or generally upon, the internal face of the joint uniting the smaller cornua: it is also bifurcated in the dog.

There are, therefore, nine pairs of muscles proper to the larynx, and one single muscle, and one pair and a single muscle, common to the larynx and the os hyoides.

The Nerves of the Larynx.—These muscles are abundantly supplied with nervous energy from the *respiratory system,* the par vagum, or eighth pair. If they could not be traced by anatomical demonstration, their mode of action would abundantly prove their origin; for they are partly under the control of the will, and partly involuntary. I am not assured that they are not indebted for their power of voluntary motion to their frequent anastomoses with the motor nerves of the spinal chord. However this may be, while the whole process of respiration is partly under the control of the will, the muscles of the larynx concerned in one stage of it are likewise so; but then they act independently of the will, for during sleep and unconsciousness the machine continues to work.

Derived from different Sources.—We have seen that, although very unequally divided, the muscles of the larynx may be classed under two heads, the dilators and the constrictors. They are both supplied by the par vagum, but, singularly enough, by different branches of it. A branch of the recurrent nerve gives some fibres to the external muscles of the thyroid cartilage, if I may so term them, and then passes through the foramen, which you will observe at the base of the superior cornu of this cartilage to be distributed over all the other dilator muscles; but the arytenoid muscle, and also the thyro-epiglottideus, are supplied by the laryngeal branch of the eighth pair, which passes through the same foramen and is distributed over the constrictor muscles.

This is a curious and interesting fact; it must, however, be admitted with some limitation. The broad assertion, first made I believe by M. Majendie, of this distribution of nervous influence to the dilators and constrictors, from different branches of the par vagum, is thus far true, that none of the laryngeal branches have been traced to the dilators; but I am sure that I have traced many fibres of the recurrent nerve to the constrictors. Still I say, the fact is singular enough.

The Experiments of Le Gallois.—Experiments, and most satisfactory, are related by Sir Charles Bell. Le Gallois found that a division of the laryngeal branch stopped the consent of motion between the muscles of the glottis and the muscles of the chest. The innumerably varied expansion of the glottis, and of the anterior cartilages, ceased at once; all the cartilages of the larynx but one had lost the power to move. The voice, however, remained; for the arytenoid muscle, derived from another source, continued to act, and the glottis was contracted, and the vocal ligaments were rendered tense, and they vibrated sufficiently rapidly and powerfully; and the animal could tell the pain he suffered under the cruel experiments.

In another case the laryngeal branch of the par vagum was left untouched, but the recurrent branch was divided. The consent of motion between the respiratory muscles and the natural process of respiration were very little interrupted, but the voice was destroyed, for neither the arytenoid cartilages nor the glottis could contract.

The common sensibility of the larynx is derived partly from anastomoses with descending branches of the fifth pair of nerves, but more from the first and second cervical nerves.

The Bloodvessels.—The origin of the laryngeal artery is not always uniform. In a few instances it is derived from the main trunk of the carotid; but in the majority of cases it is a branch of the thyroideal artery. It pierces the ligament between the thyroid and cricoid cartilage, about the middle of the side of the larynx, and is diffused over the lining membrane of the larynx, and the muscles of this organ. The ascending pharyngeal, however, affords some branches to the larynx, and other small branches may be traced. The veins follow nearly the same course as the arteries, and empty themselves into the jugular.

The Sensibility of the Membrane, how regulated, and the consequence of this.—The lining membrane of the larynx is a continuation of that of the pharynx above and of the trachea below. It is covered with innumerable follicular glands, from whose mouths there oozes a mucous fluid that moistens and lubricates its surface. It is possessed of very great sensibility;

its function requires it. It is, as I have stated, the inner guard of the lungs, and the larynx must undergo a multitude of changes of form in order to adapt itself to certain changes in the respiratory act, and in order to produce the voice. The voice of our patients is strangely limited, compared with that of the human being. The same sensibility, therefore, is not required; and nature never gives that which the animal does not need. Exposed as our quadruped slaves are to absurd and barbarous usage, too great sensibility of any part, and particularly of this, would be a curse to the animal.

Connected with some Symptoms of Rabies.—This decrease of sensibility enables us satisfactorily to account for an important fact, viz. the true hydrophobia, or dread of water, in rabies in the human being—the almost total absence of it in the brute. The degree of morbid sensibility generally bears a strict proportion to that which is natural to the animal or the part. To produce the thousand delicate intonations of the human voice, the highest degree of sensibility is given to the larynx; but incomparably less will suffice, where the compass and intonations of the voice is so much limited. We can imagine, that in the one the morbid irritability may be so great that no fluid can pass over the membrane without exciting the most horrible spasm; that the very thought of it shall produce the spasm, and that even a current of air, in increased quantity, or of altered temperature, passing through the glottis, shall be followed by the same horrible consequences; while in the other, no marked effect shall be produced by the same agents. This will be more fully discussed when, under the sensorial system, I treat of rabies. It is now mentioned incidentally as satisfactorily accounting for the fact, that the principal distinguishing symptom of rabies in the human being is wanting in the quadruped.

THE VETERINARIAN, AUGUST 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

[The following work, originating in a manner from The Veterinarian, and the subject of it again and again discussed in the pages of our Journal, claims from us something more than a mere formal review. We with pleasure dedicate our leading article to its consideration.]

A Treatise on the Foot of the Horse, and a New System of Shoeing by one-sided Nailing; and on the Nature, Origin, and Symptoms of the Navicular Joint Lameness, with Preventive and Curative Treatment. By JAMES TURNER, Member of the Royal Veterinary College, and Veterinary Surgeon in the Army. Longman & Co.

MR. JAMES TURNER has, in this little work, collected together his papers on the important subjects expressed in the title, and which were scattered through the volumes of THE VETERINARIAN. He has done more than this;—they have been submitted to the decision of his more experienced judgment: some parts have been transposed, others curtailed, others omitted; and in various places he has added interesting practical facts. Altogether, it is a performance worthy of the subject, and creditable to the talent and diligence of the author.

There can be no dispute, that Mr. James Turner was the first person who directed the attention of veterinary practitioners to the navicular joint disease as the most frequent seat of groggy lameness. This lameness was as untractable thirty years ago as it is now; but neither its nature nor place was understood: it was considered to be some undefined injury of the coffin joint—it was termed coffin joint lameness. There were a few observing veterinarians who had nearly penetrated the mystery, and had been accustomed occasionally to look to the navicular joint as the source of the evil. Among them we may reckon Messrs. Field and Morecroft. Mr. Morecroft, in a very excellent paper which he first published in the Calcutta Journal, in 1819*, gives us one instance out of a great many which the records of science will afford, how nearly an inquirer, and a diligent and a gifted one, will arrive at the truth, without its perfectly flashing upon his mind. He says, "On dissecting feet affected with these lamenesses, the flexor tendon was now and then observed to have been broken, partially or entirely; but more commonly to have been bruised and inflamed in its course under the navicular or shuttle bone, or at its insertion into the bone of the foot. Sometimes,

* See VETERINARIAN, vol. iii, p. 619.

although seldom, the navicular bone itself has been found to have been fractured; at others, its surface has been seen deprived of its usual coating, and studded with projections or riders of new growth, or exhibiting superficial observations, more or less extensive."

Here seems to be Mr. Turner's discovery, except that the sequelæ of the disease, carious affection of the bone, or lesion of the tendon, are more regarded than the primary and distinguishing character of it,—inflammation of the synovial membrane. We should almost hesitate to which to assign the palm, did not Mr. Morecroft drop all mention of the navicular joint in the succeeding part of his paper, and speak immediately afterwards of "coffin joints," and of "the greater proportion of bloodvessels surrounding diseased coffin joints," and of "tying the fetlock artery, to cut off the supply of blood to the coffin joint."

The truth of the matter is, that Mr. Morecroft was perfectly aware of the occasional existence of navicular joint lameness; but he regarded the coffin joint as the general source of disease, while Mr. Turner first of all directed the attention of the profession to the navicular joint as the frequent, or almost invariable, cause of groggy lameness.

At the veterinary college, navicular lameness was regarded as of very rare occurrence; nay, we believe that the very existence of it was at first denied as a disease of common occurrence. However jealous we may be of each other, and uncandidly and disgracefully diligent in detracting from each other's professional merit, "Mr. James Turner was the first person who directed the attention of veterinary practitioners to the navicular joint disease." We are glad that he has brought his claim before the public, no longer through the medium of a Journal, however extensively read, but in a publication of his own; and we are confident, that in no veterinary work is there given so clear and satisfactory an account of the symptoms, causes, and, to a certain degree, treatment, of this usual source of chronic lameness.

While we heartily approve of most of the alterations in these papers, we confess that we smiled a little at one of them. After recommending, and most properly, the unfettering of the inside heel of the coffin bone, by removing, as much as possible, all

lateral pressure upon it, and then physicking, and bleeding from the inside toe until the pulse falters, and the animal almost faints; and, five or six days after that, bleeding, and to the same extent, from the opposite toe, Mr. Turner, in his first paper, recommends that in the intermediate time, "on the third or fourth day, the horse should commence walking exercise on litter or a dry surface."

In this improved work, the sentence stands thus: "About the fourth or fifth day, he may be walked out upon some litter for about twenty minutes, and about the sixth or seventh day the bloodletting is to be repeated."—p. 28. This is a "bit by bit" concession and reform, which we hardly expected from the honest straightforward discoverer of the navicular joint lameness. The truth of the matter is, Mr. Turner begins to suspect that, as he was told in the Veterinary Medical Society, "to bleed at the toe to abate inflammation, and then to give walking exercise which will renew the inflammation, and then to bleed again to take away the inflammation, is not quite scientific practice:" and in a new edition (and the work deserves it, and will soon reach it) we shall hear no more of this blowing hot and cold, nor of the strange shortening of the toe, and lowering of the heel, at so early a period of the curative treatment, and perhaps not at all.

When the grand principles which Mr. Turner advocates are generally admitted—when the folly of exposing this complicated joint and sensitive membrane to sudden and rude concussion is acknowledged; after unnatural confinement in the stable has given rigidity to the parts beneath, and rendered the bruising and inflammation of the synovial membrane a thing of course—or when it is understood among practitioners, how *general* contraction of the foot may take place to a great extent with impunity, while *partial* contraction or lateral pressure on the navicular joint cannot for a moment be borne—when, in point of fact, the essence of the thing is comprehended, that the cause of navicular lameness is a bruise and inflammation of the synovial membrane, from the rigidity of the parts below—we shall cease to quarrel about things which do not bear upon the grand point: and, perhaps, Mr. Turner will not be so tenacious with regard to certain alterations of the foot—elevation—displacement of the

coffin and smaller pastern bones, which certainly are not always found—which are often seen in general contraction without navicular disease, and which are seldom seen in a hoof of nearly circular form, although the navicular disease may have made the greatest ravages. And then, perhaps, he will not, in his mode of treatment, urge that which, to say the best of it, is a little mysterious—giving exercise so early, and increasing the pressure and injury occasioned by that exercise on a membrane naturally sensitive, and that sensibility heightened a thousand fold by inflammation, by lowering the heels and shortening the toe.

Mr. Turner's account of his first adoption of the *one-sided nailed shoe,* for the prevention or removal of contraction, has so much of the candour, and straightforwardness, and professional zeal of the man about it, that we cannot refrain from extracting it.

"A short time ago, in the hurry of practice, my attention was suddenly attracted by a most extraordinary alteration having taken place in the shape of the fore feet of a horse seven years old, which had literally changed from an oblong to a circular shape in the short period of a few months, although exposed to quick work daily on the hard road, and without any person being aware that means had been resorted to for effecting such a purpose.

"On my investigation as to the cause of this important benefit which the feet had somehow or other derived, it turned out that I had been consulted by the owner of this horse, some months previously, respecting his being a determined *cutter* before, both his ancles being then raw from the repetition of blows. His feet were exceedingly contracted; but I consider it necessary to acknowledge the horse was perfectly free from lameness, and that my assistance was only required by the owner relative to the cutting. Accordingly, I gave my own shoeing-smith directions to shoe both fore feet to the extreme, *against cutting,* as follows:—A shoe of moderate substance, and of equal thickness toe and heels, to be nailed at the toe and outside quarter, with an extra nail or two at the outside heel, but *not a single nail to be driven or hole punched in the inner half of the shoe,* except one a little inclined to the inside *toe;* and all the inner edge of the shoe, that otherwise would have been fullered, to be bevelled

off, to prevent the possibility of the iron interfering with the opposite leg, and, of course, to avail himself of a further advantage by rasping away as much as possible the inner wall of the hoof, without rendering the horse tender in his work, by approaching too near the quick. It was also arranged for this plan to be followed up at the termination of every three weeks, whether the shoes were worn out or not, and which was strictly attended to.

"At the expiration of three or four months, this method of shoeing proved not only a perfect remedy for the cutting, but it also effected a most important change in the shape of the hoofs, which altered from *contracted to open expanded feet*, during the performance of very hard work. That this plan should have proved a remedy for the cutting, was no more than I expected, because it had succeeded in instances out of number; and I acknowledge the practice is nearly as old as the hills: but if in this said old method of shoeing, somewhat modified, there is to be found the necessary defence for the foot without the natural expansion of the hoof being impeded or restrained by the ring of iron nailed thereon, or, in other words, which will admit of all the functions of the foot being duly performed, I will venture to pronounce it the horseman's grand desideratum."

Although the discovery was thus accidental, it does not the less belong to Mr. Turner; and once having been made, we, and he too, wonder that it had not been hit upon ages ago. We need only look upon it to be convinced that it is *the only unfettered shoe*. Our principal fear, before experience had come to our aid, was, that it could not be securely attached to the foot. There is an appearance of insecurity about it; but, if put on in the manner and with the clips that Mr. Turner recommends, the insecurity is only in appearance. It will, for hackney work, and for quick or not too heavy draught, fairly last out the common shoe. To this the reviewer can add his testimony, his grateful testimony he was about to say: he tried the unfettered shoe by way of experiment, when Mr. Turner first spoke about it; and so satisfied is he with its good effect and its wear, that he rarely, except he has express orders to the contrary, suffers any other shoe to be used in his forge, except for heavy work. The shoes last fully as long, and he can mark the progress of improvement in almost every foot to which they have been applied.

The latter part of Mr. Turner's book contains many valuable original observations. He considers the claims of Mr. Freeman and Mr. Bracy Clark to the discovery of the elasticity of the horse's foot—the too limited scale of the expansive principle as explained by Mr. Coleman—the actual security of the one-sided-nail shoe, compared with the common one, notwithstanding the unfettered state of the foot (there is a great deal of ingenuity and truth about this)—the extension of these shoes to hunters, and with complete success—the effect of this shoe in the prevention or removal of corns—the great advantage of the unfettered shoe when the horse is comparatively unemployed—the importance of the application of it to the foot of the racing colt—the prolongation of usefulness, and the increase of speed that would result—and the recommendation of them for the hind feet, and especially in growing colts;—on these particulars, and most important they are, Mr. Turner must speak for himself; there are few of our readers who will not have recourse to him.

Veterinary Jurisprudence.

Roberts *v.* Croft.—The Formation of Cataract.

The following trial took place at the Shropshire Spring Assizes, before Mr. Justice Taunton.

Upon the 23d of June, 1831, the lady of the Rev. N. Roberts, a clergyman of large property, residing in Oswestry, purchased a grey horse, five years old, from Mr. Croft, a surgeon of independent property, practising at Barchurch—price fifty guineas, and the horse warranted sound. Upon the evening of the day of sale, Mr. Roberts's coachman discerned a small tumour under the horse's belly, a little forwarder than the sheath, which he at first thought to be a wart, but upon closer examination considered it something worse; and the opinion of Mr. Hammonds, a respectable practitioner in Oswestry, was taken upon the case: he declared the tumour to be a small hernia, and the horse unsound in consequence of it. Next day the horse was returned to Mr. Croft, who refused taking him back, except upon a certificate of

unsoundness from two veterinary surgeons; but permitted Mr. Roberts's coachman to leave the horse at his house, and said that he should be taken care of until the matter was settled. A few days after the horse was returned, Mr. Croft sent for Mr. Clay, a veterinary surgeon residing in Shrewsbury, to see him, whose opinion was, that the rupture being so very small, it was of no material consequence, and did not amount to unsoundness.

Upon the 18th of July, Mr. Hickman, a veterinary surgeon of Shrewsbury, saw the horse on the part of Mr. Roberts, and his opinion, with regard to the rupture, coincided with that given by Mr. Clay; but, upon making a general examination, he discovered a very small cataract in the near eye: this he declared an unsoundness, and that, from the nature of the disease, it must have existed previously to the sale. Mr. Croft said he had bred the horse; that nothing had ever been known to be the matter with his eye before he sold him; that the subject in dispute was the rupture, and that no complaint had been made of the eye till then, nearly a month after sale.

The first witness was the plaintiff's coachman, who deposed to being present at the sale, and that he discovered the small tumour under the belly. He took the horse back to Barchurch next day (June 24th). Mr. Croft said, if Mr. Hickman and Mr. Hales pronounced the horse unsound, he would take him back; if not, Mrs. Roberts must stick to her bargain. It was on account of the rupture the horse was returned; did not know or suppose any thing to be the matter with his eyes. Upon cross-examination he admitted turning the horse round to look at his eyes, but did not examine them so as to be able to say whether there was a small speck upon either of them, or not.

Mr. Hammonds saw the horse on the 23d of June; found that he had a small rupture; considers that an unsoundness, as he would be liable to severe injury from accidents to the part; and it was possible that it might become strangulated, but he did not consider that very probable. His opinion was only required as to the rupture; nothing was said about the eyes, and he did not examine them at that time. Saw the horse again in the latter end of July, at the Cross Keys Inn, Oswestry; there was then a small cataract in the near eye. Saw the horse a few days ago: the eye looks the same now as it did in July.

Mr. Hickman examined the horse in the first or second week in July; does not remember the day, but believes it was the fourth: did not consider the small rupture an unsoundness; and, upon his telling Mr. Croft so, that gentleman asked him to give a written warranty. He replied, that, before he could do that, he must examine the horse generally; and in doing this

he detected the small cataract in the eye. He told Mr. Croft that he was sorry to discover an unsound horse for him. Mr. Croft said, "So am I; and, upon my honour, I had not the least idea of such a thing;" and I believe him. Mr. Croft also said he wondered he had not seen it, as he was continually in the habit of having the horse's eyes sponged. Cataract is certainly an unsoundness, and must have existed when the horse was sold, as it *never* forms in the horse except as the consequence of repeated active inflammation in the eye. The inflammation that produces cataract is much more easily seen than the cataract that comes after it. The horse's sight is defective. He saw the horse again in October: the cataract was then much larger, and the horse could see but little from that eye.

Mr. Jervis, leading counsel for the plaintiff, now said that he should not insist upon the case as regarded the rupture, but confine himself to the cataract.

Mr. Collier, of Chester, saw the horse in the beginning of October: there was a small cataract in the near eye. Cataract never forms without repeated active inflammation. Will not swear that a cataract may not form in a month.

Mr. Richards and Mr. Crowe, both of Shrewsbury, deposed that cataract could not form without repeated active inflammation; and they consider that inflammation must have existed several months before the cataract formed.

For the Defence.—Edward Edwards, a horse-breaker, took the horse for Mrs. Roberts to see. He, Mr. Roberts's coachman, and a man of the name of Pratt, all three examined the horse's eyes in the door-place of the stable: there was nothing the matter with them then. The coachman said the horse had very good eyes; that he knew his dam, and she had capital eyes. Mrs. Roberts asked the coachman if he had examined the eyes, and he replied that he had. He knows what is meant by a speck on a horse's eye—that is called a cataract. He rode and looked after the horse for Mr. Croft several months in the spring, and never saw any thing the matter with his eyes. He was in the habit of sponging them, but not because any thing was the matter with them, but as a part of grooming. Mr. Croft had all his horses' eyes and noses sponged. He saw the horse again upon the 26th of July, at the Cross Keys; he then could see the speck plain enough, and has seen it upon examining the eye since.

Joseph Pratt deposed to the examination of the eyes by the coachman, Edwards, and himself, as stated by Edwards.

Mr. Croft's bailiff had known the horse since he was foaled, and had occasionally looked after him. Never had seen or heard

of any thing being the matter with his eyes; had sponged his eyes, as Mr. Croft always had his horses' eyes sponged when they were dressed.

Mr. Croft's groom never saw any thing amiss with the horse's eyes before he was sold. After he was returned he had three feeds of corn a-day, and no exercise, as his master was afraid of some accident happening to him if he was taken out. He began to rub his tail, and he thought his eyes looked a little watery. Does not know the day of the month that Mr. Hickman saw the horse, but it was, at least, three weeks after he was returned. Mr. Hickman advised the horse to be bled. He sponged the eyes of all Mr. Croft's horses regularly.

Mr. Clay examined the horse on the 27th of June, but was then only asked his opinion with regard to the rupture, which he did not consider unsoundness. Nothing was then said about the eye, and he examined no further than he was requested to do. Saw the horse several months afterwards: there was a small cataract in the near eye, about the size of a pin's head. Has known cataracts form without active inflammation, or without any previous apparent disease of the eye. Has detected small cataracts when the owners had not the slightest suspicion of any disease in the eye, and who declared that no previous inflammation had ever been observed; and he thought it not improbable that a small cataract, like the one in question, might form within the time that the horse was sold and when the disease was first discovered. Keeping a horse upon high feed without exercise is very likely to bring on disease of the eye.

Mr. Justice Taunton, in summing up, said, that it was a question entirely for the jury to consider, whether the cataract could have formed between the sale and the period at which it was discovered. If they believed that the disease could not have been produced within that time, they must find for the plaintiff; but if they believed that the cataract could have formed after the sale, then they must find for the defendant, as it was not enough for the plaintiff to shew that the unsoundness did most probably exist at the time of sale, but it was incumbent upon him to prove that this must of necessity have been the case.

The jury, after some consultation, found a verdict for the plaintiff.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

"The Voice of Humanity," for the Association for promoting rational Humanity towards the Animal Creation, vol. ii.

It is well known that a very praiseworthy society has existed for some years, denominated "The Society for the Prevention of Cruelty to Animals." It owes its origin to an eccentric but benevolent individual, Mr. Richard Martin, who seemed to devote every energy that he possessed to rescue those from needless suffering to whom man was more indebted than he cared to acknowledge, but whom, in thoughtlessness or recklessness, he cruelly and disgracefully treated. He brought into the House of Commons, and (although defeated again and again, not only by the supineness, but the actual opposition of those who thought that they had a right to do as they would with a brute) he at length carried through the House an excellent bill for the repression of much evident and unnecessary cruelty to some of the larger domesticated animals.

But as a law is of little use unless it is acted upon, and as he feared that, even in so good a cause, few might be induced to incur the trouble and loss of time, and somewhat too of the popular disgrace of informing against the perpetrators of apparent cruelty, he used the influence which his situation in life gave him among various benevolent individuals, and he formed a society, the principal object of which was to appoint and to remunerate certain persons, whose business it should be to look out for and to prosecute offenders.

To a very considerable extent this society worked well. Numerous miscreants were exposed and punished. Several barbarous sports, if not entirely repressed, assumed a milder character: fear first, and then habit, repressed many of the ebullitions of wanton barbarity which used to be displayed everywhere, and almost every day; and, in fact, the condition of our domesticated slaves, still in many respects bad enough, was evidently ameliorated.

But it at length occurred to some who wished well to such a cause, that a better mode could possibly be adopted of effecting its excellent purpose. Its avowed object was the prosecuting and punishment of offenders. A set of paid informers was attached to the society, who were diligently seeking out, and sometimes getting up, cases of cruelty. Now and then the informations were dismissed, and with a pretty strong hint that

the officers of the society were somewhat too busy; and thus the association incurred a certain degree of disgrace, and the prejudices of the common people began to be enlisted against it; and those who were punished, being convicted through the medium of hired informers, thought themselves aggrieved; and a disposition to cruelty was sometimes cherished, instead of being rooted out. There were only two ways of punishing the offender,—by fine or imprisonment; and in either case others were punished with him, who did not share in his crime: he had a wife and children dependent upon him for bread—their deprivations enlisted them likewise in opposition to the society; and although the institution did effect a great deal of good, and merited and continues to merit the support of every humane person, it was attended by this very material drawback.

It then occurred to some intelligent and active individuals, that another association might be formed, with the same noble object in view—the suppression of cruelty; but by the extension of humane principles, rather than by punishment—by the power of persuasion and moral conviction, and not by legal coercion—by the influence of the press, and not the hard hand of the law. We will not inquire whether this might not have been better effected by an alteration and extension of the original society, or whether the existence of two associations endeavouring to accomplish the same object, however good and sacred, by different means, would not necessarily lead to little bickerings and jealousies. If misunderstanding, ay and even alienation, took place among the advocates of a yet nobler cause, we may regret, but are not disposed too severely to censure, the want of union even among the ardent friends of humanity. We hasten to draw a veil over all this; and the only portion of this volume which displeased us, was that in which this veil was unnecessarily raised.

Two associations are, however, now at work, and working well and prosperously; and by both of them the rights of our quadruped slaves are advocated and enforced, and the tortures, wantonly or maliciously inflicted on them, materially diminished. We wish well to both; and we would beg to whisper to them, that that would be an honourable and a happy day when they amalgamated.

A little pamphlet is published quarterly by the "Association for promoting Rational Humanity," price 1*s.*, containing many pleasing and well-written essays, unfolding and enforcing the grand principles of humanity, as it regards the brute creation. Now and then there are anecdotes of the effect of these appeals, more pleasing, and we think more durable, than that which would follow the coercion of the law. It is an association with

which we have, independent of the bond of common humanity, much fellow-feeling; for the very object of our profession is, to ease the pain and prolong the enjoyment of our dumb slaves.

At the end of the year these pamphlets are collected. This is the second volume. We heartily recommend it to the perusal and patronage of every one whose professional fame and prosperity must have humanity as its firmest basis.

The following extract from an essay, by J. D. Parry, M.A., will give a fair sample of the spirit and ability with which the cause of humanity is advocated.

"Again:—When we venture to allude to the cruelties attendant on cock-fighting, bull-baiting, and similar atrocities, we are told, 'These are the AMUSEMENTS of the lower orders; they have as much right to engage in these amusements as persons of rank have in theirs; and you have no business to intermeddle with them.' We admit their right to be equal—but what if we deny the right of either? The objectors know, in their consciences, that they are placing the argument in an unfair, an ill-natured light. We object not to these exhibitions, because they are the amusements of the lower classes, but because *we know* these AMUSEMENTS (!) *to be connected with the most disgusting and revolting* CRUELTIES. Amusements of the lower classes! Why, there are scores of amusements for the lower classes to which the advocates of rational humanity offer no one objection. 'Amusements!'—for whom?—to what description of beings, whether they move in the higher or lower ranks of society, can wanton cruelties become amusements? Can rational, can *Christian* men, find amusement in the writhings and agonies of a tortured animal? Oh, thou merciful, thou perfect FIRST CAUSE of all things! were such men, indeed, created in thy image?

"One great defect in the efforts which have hitherto been made for the prevention of cruelty to animals, has, I humbly conceive, been that of not placing the duty of humanity in a sufficiently strong light. Once convince men that it partakes of the same nature *as their duty to their fellow-creatures*, and they will irresistibly be led to its adoption, and will regard cruelty with as much dislike in the one case as in the other. For instance:—it is stated that in COCK-FIGHTS the birds have *spikes* fixed on their legs, with which they deeply wound and lacerate each other. Now, suppose for an instant that in HUMAN prize-fights the combatants were armed with *spiked gauntlets*, with which, at every stroke, they jagged and tore each other's flesh—who would stand still patiently to endure the sight? Will any say, 'Oh! but, in the first case, the combatants are *only birds*, and, therefore, 'tis of little consequence what we do to them?' Is IT so in

the sight of that Almighty Being who created all things, without whose knowledge 'not a sparrow falleth to the ground?'

"The individual in whose breast the great and generous feelings of true and rational humanity glow, will extend its exercise even towards minute circumstances; he will never permit suffering where it can be prevented without inconvenience; and as to the infliction of wanton cruelty, he will shrink from it intuitively. Some may endeavour to persuade us that reptiles, and other inferior animals, as they have not the same faculties as human beings, do not suffer in the same proportion; but we are anxious to know how they have thus gained the confidence of these animals, and why it is that when 'we prick them, they bleed'—when we 'poison them, they die'—and when we torture them, they shrink and writhe?

"I will briefly advert to the different measures of satisfaction which humanity, or its opposite, will inevitably produce on the mind. Some, indeed, have been so long accustomed to close the avenues to their hearts against all the arguments for benevolence, that they are not aware of the gratification of which they deprive themselves—as the blind man, who perceives not the beauty of colours, knows not the privation of his own darkness. These, however, we would fain hope, are exceptions. Man, as the delegate of the CREATOR, has a despotic power over animals, which human laws can but very slightly affect or modify. Is there not, then, a striking analogy between his case and that of a sovereign of men, who is either a despot or a patriotic ruler?—the *former*, repelling the sympathies and overawing the allegiance of his subjects by compulsion and terror—wringing the means of his wealth and his pleasures from the hard efforts, the merciless tasks, the wants and the weakness, the sufferings and the agonies, of a wretched, afflicted, and prematurely ruined multitude; the *latter*, obeyed with cheerfulness and zeal by contented and happy beings, the alacrity of whose services renders them both complete and pleasurable. Bear this analogy in mind, and then look at the man who is possessed of various domestic animals, who are seen to approach him with confidence and pleasure, who are well fed and carefully protected, and, therefore, preserve their original beauty, and fulfil their appointed tasks with ease and pleasure; then, look at him who never affords the slightest attention to the comforts of the animals whom he selfishly and mercenarily considers as mere machines contrived for his use—who abandons them to the carelessness or caprice of underlings, before whom he exhibits no example of kindness—who rules only by threats and terror, by the rod and the lash—whose abused and ill-treated cattle prematurely lose their powers, and are then sold for a trifling pittance, to drag out the remnant

of a miserable existence under the hands of a more needy, and, therefore, perhaps less inexcusable, taskmaster. 'Look on this picture, and on that,' and then say which is the happiest man.

"No feeling, perhaps, is less liable to be extended to a faulty *excess* than that of humanity to the brute creation; the power of man being always despotic over them, he will ever need reminding of his responsibility for its abuse. When the benevolent system of the great philanthropist, HOWARD, became general, it was observed, and with some justice, that prisons were made *too comfortable*, and were but ill-adapted as places of punishment. The analogy, however, cannot hold here: animals are not criminals—and if man, by his ill-treatment of them, first renders them unfit to perform their parts well, and then recklessly discharges on their heads the consequences of their failure, is he adopting such a line of conduct as will afford satisfaction and peace of heart? Is he not rather playing

> 'Such fantastic tricks before high heaven,
> As make the angels weep?'

"I would respectfully suggest, to all who may honour this with a perusal, that as their feelings of mercy should ever be keen and lively, so the conduct prompted by them should be *practical* and *active*. He who witnesses any act of atrocious and wanton cruelty, and merely deplores the inhumanity of the world, does—in point of fact and utility—*nothing*. If he remonstrates with, or threatens, the perpetrator of the cruelty, and, where it is within the reach of the law, punishes him, then, as far as that punishment goes, he does *something*. If, after he has done this, he returns to his room, and devises measures whereby the recurrence of such acts may be rendered less possible, measures by which the *whole system*, in reference to the treatment of animals, may be *improved*, he does still more; and if, in order to render his plans more effective, he unites himself with a number of kindred souls, for the accomplishment of his wishes, strengthening their hands and confirming their resolutions, he may then be said to have 'done what he could.'"

Every Man his own Cattle Doctor, or a Practical Treatise on the Diseases of Oxen and Sheep; to which is added, the Medical Treatment of Swine, Poultry, and Rabbits. By FRANCIS CLATER. A new edition, revised and almost recomposed, by an Eminent Practitioner. Baldwin and Co.

This is indeed the age of reformation—it has begun in the Commons' House, and it will pervade every department of the

state, of society, and even of science. Some tell us, and with much appearance of truth, that there is a great deal that wants reforming in human medicine; sure we are, that there was nothing in politics or in jurisprudence that half so much needed reformation as veterinary science. The good work has begun there, and it will progress—slowly, perhaps, but surely; nay, as rapidly as the state and prejudices of society, and the grade and character of veterinary practitioners, will permit.

We have a proof of the march of reformation in the work before us. When our literary and elementary food becomes more wholesome, and full of nutriment, our professional constitution will grow and thrive. Clater was once the scorn of the well-taught practitioner, and the very opprobrium of the British veterinarian. Amidst the list, too long, of trashy and poisonous works that stinted the growth and vitiated the constitution of veterinary science, Clater once stood foremost. Whether a decrease of sale, or a portion of that wisdom which it would be well if others possessed, of being warned of the signs of the times, or we hope a better feeling still,—whichever of these operated in the minds of the proprietors of the work, they have put it into other hands, and it has undergone a marvellous improvement; nay, to that extent, that, in our present dearth of books on the diseases of cattle, we can cordially recommend it to our readers, as one of the very best treatises on this subject.

The two following extracts speak for themselves. We select them as bearing a little upon the disease hinted at by our friend Mr. Spooner, in our last number, and which, he has since informed us, is characterized by effusion in the whole of the thoracic cavity; in fact, it is that *pleurisy* which is as fatal among cattle and sheep, as inflammation of the substance of the lungs is among horses. The lungs had probably been affected and predisposed to inflammation by the almost total abandonment of the animal at the time of yeaning, and, by and by, too succulent food stirring up any latent tendency to fever, wherever it might be found, this already weakened part is first attacked.

The new editor is speaking of the period of lambing.

"Attention should now be paid to the lamb, and he requires it even more than the mother. It is want of care that causes the loss of more than four-fifths of the *dead* lambs. The principal evil is exposure to cold. If the weather is severe, great numbers of lambs are often lost in a single night. A few hurdles with straw, or a warm quick hedge, would save the greater part of them. The farmer need but use his observation to be convinced how eagerly the ewes and the lambs seek that shelter, and how

safe they are compared with others that are exposed. Some breeds are more hardy than others, but the hardiest of them will not endure absurd and cruel neglect and exposure. Let the farmer think of the sudden change from the warmth of the mother's womb to the driving sleet, and the cold wet ground; he will not wonder that so many of his lambs are palsied and starved to death.

"The lambs are not quite out of danger when a day or two has passed after they have dropped. They live for the first week or fortnight on the mother's milk, and then begin to imitate their parent and graze a little; indeed, they have not their teeth up to enable them to graze at first. They should not be put on too good pasture at this early period, for the change of food is often dangerous. A lamb of a fortnight old will often sicken suddenly, refuse the teat, cease to ruminate, swell, heave, and die, in less than twenty-four hours. When, at three and four months old, the lamb is perfectly weaned, he is subject to a similar complaint, and from a similar cause. The lamb should certainly have better pasture when he is deprived of his mother's milk, but the change should not be sudden and violent."

The second extract is the conclusion of his pathology of the sheep and lamb, and in which he very properly and usefully turns to the farmer.

"I will conclude this account of the diseases and treatment of sheep with two or three general observations, which may be useful to the *farmer* as well as the veterinary surgeon.

"It is an old maxim, and a most excellent one, that prevention is in every case far better than the cure; and I am perfectly assured that by a little attention, and the exercise of common humanity towards these useful and neglected animals, there need not be half the diseases, or scarcely a fourth part of the deaths that occur.

"In the first place, the farmer should look more than he does to the actual state, and health, and comfort of his flock. Instead of riding or walking in among them every day, and in a manner making every animal pass muster before him, he frequently contents himself with looking at them from a distance, or perhaps he does not look at them at all for many a day. He deserves to be unfortunate who, in the lambing season, is not early and late among his ewes. Many a ewe is lost by rough handling; many more by not receiving the requisite assistance in difficult parturition; many a lamb is deserted by its mother; many a one palsied by lying on the cold wet ground, and many more for want of being frequently and carefully suckled.

"The farmer alone will be induced, by a regard to his own in-

terest, to take into due consideration many a circumstance connected with the season and the state of his flock, which would never enter into the mind of the looker, but on which the lives of the sheep depend. Many a lamb dies for want of a little shelter in an inclement season; but many more die when the winter is mild, and the spring is early. In the one case they die from cold and starvation; in the other, from being in too high condition, and having too much milk. The looker will go on in the same regular way, whatever be the state of the season: it is the proprietor alone who will have sufficient consideration to allow additional food and shelter in the one case, and in the other to stock as hardly as may be, before and during the lambing; to suckle, and feed, and shelter the weakly; and to keep back and prevent the suckling, and to milk the dam, and to stock hard when the lambs are thriving and the weather kindly: these are affairs about which the generality of lookers scarcely concern themselves, and into which the best of them will not enter so anxiously as the master.

"The most important circumstance to be attended to at all times, and particularly at the lambing season, is shelter,—not confinement, but shelter from the searching north and east wind. There should not be a lambing field without a shed in it, or, at least, without some place surrounded with brush-wood faggots on the north and east sides at least, if not all round, and into which the weakly lambs and ewes may be driven, and in stormy weather the whole flock may take refuge with manifest advantage.

"Next in importance to shelter stands food. The animal may be stinted in his growth, and prepared for scab by starvation; but he may be inevitably destroyed by over feeding, or sudden change of food. The unhealthy seasons for sheep, putting the rot for a moment out of the question, are not the winter, when no grass grows, nor the summer, when it is all burned up, but the spring and the autumn, when there is plenty, and too much to eat. They contrive to live, if not to fatten, in the two former seasons, but they perish from excess or change of food during the latter two.

"There is one disease, however, which is caught, or the foundation for which is laid in the summer, and that is the rot; but from what has been stated with regard to that disease, a proper system of husbandry, and attention to little unsuspected but most dangerous nooks and corners, would materially limit the ravages of this malady.

"The grand fault in the management of sheep, and of all domestic animals, is, that the farmer pays so little personal attention to them, and pursues one undeviating course, the same

that he learned from his father, whatever be the state of his flock, and whatever the state of the season; and to this must be added —the most absurd, and the most injurious of all—a spirit of fatalism; a submission, not without repining, but without an effort to avert them, to many and serious losses, which a little care and personal trouble might have prevented."

Extracts.

Cases of Intermittent Fever in the Horse assuming a Quotidian Type.

By M. Clichy, *Veterinary Surgeon at Joinville.*

Having given, during the last year, the history of a case of intermittent fever assuming a quotidian type in the horse, which I treated and cured with Peruvian bark, I feel myself called upon to record four other cases of the same disease, because in these the cinchona was superseded by sulphate of quinine. No one can be ignorant of the essentially febrifuge properties of this last drug; and experience has already proved, that it possesses them in a much greater degree than the bark, and that in all cases it ought to be preferred. Thus, in the first place, by means of this medicine the cure is always more prompt and certain; secondly, it is much more easily administered; thirdly, if we have to treat a patient the mucous membrane of whose stomach is irritable, it can be administered in clysters, and the results will be the same as if it acted immediately on the mucous membrane of the stomach; fourthly and lastly, on calculation, I find this treatment less expensive than with the cinchona.

Before entering on this matter, I ought to testify my gratitude to my estimable friend, Dr. Genet, the surgeon of our town; as it is to him that I am indebted for attempting this fortunate innovation on veterinary therapeutics. At his suggestion I first used the sulphate of quinine; and I had the advantage of his advice, both in the ordinary course of treatment and the mode of administering this drug. I call it a fortunate innovation, as the results of the following cases will clearly prove.

Case I.—In the beginning of September, 1828, an entire horse, of the Percheronne breed, about five years old, of a muscular frame, and in tolerable condition, belonging to M. Badin, of Poupry, was brought to me, because for the last two or three days he had been regularly seized, about ten o'clock in the morning, with universal shiverings, and had refused to eat, and lay down at the

full length of his halter: this shivering lasted from an hour and a half to two hours, and was followed by great depression of spirits; and it was not until some hours after that the appetite returned.

From the examination I made of this animal when he was brought to me, I could not perceive any symptoms of disease: it was not until the next day, between ten and eleven o'clock in the morning, that I recognized the unequivocal tokens of intermittent fever. The third day, at the same hour, the animal was seized with another fit. At eight o'clock on that evening I administered eight grains of sulphate of quinine; at midnight, eight grains more; at four in the morning, another eight grains; and three or four hours afterwards, another eight grains; which I compounded in the following manner:—

Sulphate of quinine	eight grains
Common distilled water	eight ounces.

I dissolved the sulphate in the water by means of a glass pestle and mortar; and, to perfect the solution, I put in a few drops of sulphuric acid, which has the property of dissolving all sulphates.

On the fourth day, between ten and eleven o'clock, the fit was shorter and less violent than before. The same medicine was given as yesterday, and at the same hours.

On the fifth day, the febrile symptoms were less apparent; the animal shewed only a little uneasiness. The same medicine was continued.

On the sixth day, the morbid symptoms completely ceased: nevertheless, I continued to adminster the sulphate of quinine, during nine days, in the following doses, in the morning and fasting:—On the first three days, eight grains each morning; on the three next, four grains; and on the three last, only two grains each morning. The fifteenth day the horse was returned to his owner, perfectly cured.

Case II.—About the middle of September, 1828, I was consulted by M. Sevin, farmer at La Valie, about a draught horse of the Picardy breed, and aged ten; of a weak constitution; and who for the last five or six days had every day, at the same hour (three o'clock in the afternoon), the following symptoms:—He would suddenly cease to eat, become dull, hang his head, go back to the full length of his halter, and soon be seized with shiverings of the whole body. He usually continued in this state about two hours, after which these symptoms progressively disappeared. I examined this horse when he was brought to me, and his appearance was that of an animal in perfect health.

At three o'clock, however, the symptoms of fever declared themselves: they were exactly the same as those observed in the preceding case, except that the eyes were not closed, and the vertebral column was flexible: he walked easily, and the arteries were full.

On the second day, the fit was as violent as usual. I then, at midnight, gave him ten grains of the sulphate of quinine in eight ounces of water; at four in the morning, ten grains more; four hour after, another ten grains; and the same quantity at noon. At three o'clock in the afternoon the animal continued to preserve his natural gaiety and appetite; in a word, the symptoms of fever were not perceived: nevertheless, I gave the patient four more doses of the quinine, of the same quantity and at the same hours as yesterday. No symptoms returned. I continued, for nine days, to administer this medicine, and in the same manner as I had done to the horse mentioned in the preceding case.

The animal was discharged from the infirmary on the thirteenth day, and resumed his ordinary work, which he has since continued to do without experiencing the slightest illness.

Case III.—The 20th October, 1828, a draught horse, of good constitution, and of the Percheronne breed, belonging to my father-in-law, M. Breton, proprietor and farmer at Allaines, was brought to me. For some days before the horse was brought to me, at about seven o'clock in the evening, the animal became suddenly dull, ceased to eat, supported his head on the edge of the manger, and drew up his four extremities under the centre of gravity, and from this position it was almost impossible to move him. Shiverings of the whole body were soon perceived; and it was not till nearly an hour and a half afterwards that all these symptoms ceased, excepting a little feverish heat.

After what was told me, I pronounced that the horse had intermittent fever of a quotidian type; and I was not deceived, for at seven o'clock in the evening I witnessed every symptom of this kind of fever.

The next day, at four in the morning, I gave the animal twelve grains of sulphate of quinine in nine ounces of water; four hours after, twelve more grains; at noon, twelve; and at four in the afternoon, twelve more.

Three hours after the last dose, I saw nothing of the symptoms which I had observed on the preceding day.

This horse was submitted to the same treatment as the former two for nine days: the dose of sulphate of quinine was diminished in the same manner (eight, six, and two grains), and on the fourteenth day the animal was returned to M. Breton.

Case IV.—*November* 10, 1828. A cart horse of the Per-

cheronne breed, six years old, of a sanguine constitution, belonging to M. Grenet, postmaster at Thoury (Eure-et-Loir), had for some days past had occasional fits of lassitude and depression. This horse during violent exercise, in which he was covered with sweat, was caught in a shower of rain on a cold day, and which immediately stopped the perspiration. On being brought into the stable he was seized with violent shiverings, and with intense pain in the head, which was easily ascertained, for on the slightest touch about that part he evinced the greatest suffering. It was then he was brought to me, and these are the symptoms which I observed:—the horse was dull, and hung back as far as his halter would allow him; his eyes were closed, his head lowered and hot; he groaned, and appeared in great pain when his head was raised, and which announced a very intense inflammation of the head. The nasal and conjunctival membranes were red; pulse small, frequent, and hard; the mouth hot and clammy; the appetite was totally gone; the skin was dry and hot; the dorsal portion of the spine stiff, and the action of the horse slow and embarrassed. (*Acute rheumatism, or rheumatic fever?*)—Bleeding from the saphena veins, emollient drinks, and clysters.

The second day, the same symptoms; more pain about the abdomen, augmented by pressure; great thirst; the tongue dry and coated; a serous diarrhœa, not very copious or frequent.—Mucilaginous drinks, clysters composed of a decoction of linseed and poppy heads.

The third day, swelling of the belly, and more intense pain; the tongue dry; the pulse more frequent; a slight running of blood from the nose; great heat and inflammation about the head; urine in small quantities.—Bleeding from the saphenas, mucilaginous drinks and emollient clysters.

The fourth day, the same symptoms and the same medical treatment.

The fifth day, the belly was still more swelled and painful; considerable watery purging; urine seldom voided, and red; very great dryness of the skin; the respiration slightly impeded; inflammation of the head; the epistaxis more abundant than at first.—Bleeding from the subcutaneous abdominal veins; drinks acidulated by tartaric acid; two emollient clysters, with the addition of thirty or forty drops of laudanum in the last clyster, and which is not to be administered until after the animal has returned the first.

On the sixth, seventh, and eighth days, little alteration.

On the tenth day, the horse was evidently better; the tongue was slightly moistened; the fur with which it is covered is

thicker; the pulse less frequent, the swelling and pain of the belly diminished; the skin not so dry, and the respiration freer. —The same treatment, excepting the bleeding.

On the eleventh and twelfth days, the patient continued in the same state; the oppression of the breathing, however, was rather greater.— The same treatment as on the preceding days.

The thirteenth day, diminution of all the symptoms. The tongue still covered with a thicker fur than in the natural state.

The fourteenth day, the pulse good; the belly no longer tucked up; the urine natural; but the respiration somewhat laborious, with cough; the appetite good.—Barley water, simple clysters, and walking exercise.

On the sixteenth day, at about nine in the morning, the patient was seized with shiverings, which lasted about half an hour; the pulse raised; depressed breathing and cough; but otherwise the tongue was clean, and the belly was not painful, and had returned to its ordinary size.

On the seventeenth day, there was marked augmentation of the fever, the oppression, and the cough.—Bleeding from the jugular, emollient electuaries and clysters.

On the eighteenth day, exacerbation of the symptoms.—The same treatment as yesterday.

On the nineteenth, twentieth, and twenty-first days, there was no abatement of the symptoms: the pulse frequent and strong; the cough hard and frequent, the respiration spasmodic and short, the tongue and skin very dry.—The same treatment; blisters on the loins and back.

On the twenty-second and twenty-third days, the state of the animal was ameliorated: the pulse was less frequent; the respiration easier, and the blisters had excited a lively irritation.—Emollient and slightly acidulated medicines were administered in honey; simple clysters.

Good fortune is too frequently treacherous. The horse would have been completely cured in eight or ten days more, if on the twenty-ninth day he had not been attacked by an intermittent fever of a quotidian type.

On this day (the twenty-ninth of the disease), at nine o'clock in the morning, the animal was seized with pains difficult to describe: he supported himself alternately on each of his four feet; turned himself to the right and left; lay down and then suddenly rose again; rested his nose on the litter or on the edge of the manger, then quickly assumed another position. He remained in this state twelve or fifteen minutes, after which he leaned his head firmly on the edge of the manger, and remained quiet: but he was soon seized with a general shivering, which

lasted during nearly two hours. As now, and through the whole of the remaining illness, the symptoms were almost the same as those I mentioned in the former cases, I shall pass them over in silence.

The thirtieth day, at nine in the morning, the shivering came on, and lasted two hours and a half or three hours, and a hot fit succeeded. That state of uneasiness and pain which yesterday preceded the shivering, did not appear to-day.

The thirty-first day, at the same hour, there was another fit, not preceded by uneasiness. In the evening of this day, at six o'clock, I gave fourteen grains of sulphate of quinine in a pint of water, with the addition of a few drops of laudanum, as a clyster. Four hours afterwards I gave another clyster, composed in the same manner; at two in the morning, a third; and four hours afterwards, another.

The shivering was less; the mouth not so hot, the respiration in its natural state, the pulse full without being too quick, and the artery compressible. The animal was continually searching for something to eat.

On the thirty-second of the disease, I gave fifty-six grains of the sulphate of quinine in four clysters, at the same hours as before. All the morbid symptoms completely disappeared. For nine days I continued to administer the sulphate of quinine in the morning fasting to this horse, as I had done to the former ones.

From this time the animal has been perfectly well.

Note.—Care must always be taken, when we wish to act on the mucous membrane of the rectum, to empty this intestine by means of one or two simple clysters; and as soon as the last has been returned, to give the intended clyster, made with as little water as possible, and with the addition of a few drops of laudanum, to prevent gripes: for to succeed in this treatment, it is absolutely necessary that the clyster should not be returned, at least for a considerable time after it has been administered. I also think that the dose of sulphate of quinine might be augmented without inconvenience, whether given by the mouth or in clysters; and we might thus succeed in arresting the fever in its earliest stage.

PS. Since writing the above observations, I have had opportunities of seeing several horses labouring under the same disease: these animals have all been treated with sulphate of quinine, and were all perfectly cured.

(Recueil de Méd. Vet.)

Singular Occurrence of Cholera among Poultry at Choisi-le-Roi.

The following account of an irruption of well-marked cholera amongst the poultry at Choisi-le-Roi, is well deserving the attention of all observers of epidemic diseases. Our readers are, doubtless, aware, that vague and obscure anecdotes of similar events have been frequently related during the progress of cholera from Astrakhan to the British islands. We have alluded to some alleged occurrences of this description in our article of the 19th November, 1831*, a reference to which will sufficiently shew the great importance of such events in enabling us to approach a rational decision on the questions relative to the mode of propagation of epidemics. It will also be seen on consulting that number of *The Lancet*, that up to the time of its publication, no well-authenticated or conclusive record existed of the occurrence of *cholera* in the inferior tribes of animals. It is true that enormous quantities of fish had suddenly perished in the ponds at Marienverder, in Prussia, while cholera raged in that district; but the almost insuperable difficulty of obtaining the evidence of symptoms, or pathology, in the diseases of fishes, was sufficient to prevent the deduction of any important inference from the occurrence. We have now, however, before us, ample and well-authenticated details of a true cholera epizootic. The symptoms are as marked as in the human subject; the pathology is as closely similar as the difference of physical configuration between man and the gallinacea permits. The event, we repeat, is deeply interesting, and it is fortunate that it has met with so well-qualified an historian as M. Carrere.

On the Epizootic Disease at Choisi-le-Roi†, by M. Carrere, *late Interne des Hôpitaux.*

During the disastrous progress of cholera in Paris, the village of Choisi-le-Roi, while perfectly free from the epidemic, was the scene of an epizootic disease, of which domestic poultry were the only victims. In the history of many other epidemics we find coincidences of this description of peculiar diseases affecting the lower animals, while pestilences were decimating mankind. Sometimes horned cattle, at other times horses, have been especially attacked; but there have not been recorded more than two or three examples of epizootics among birds. Chabert and Bo-

* See Veterinarian for January 1832, page 42.

† Choisi is situated about five miles from Paris, on the banks of the Seine. It is considered a remarkably healthy village.

ronio have, it is true, described some diseases of birds, observed in France and in Lombardy; but the characters of the affections they describe are totally different from those observed at Choisi.

The cholera had scarcely appeared at Paris, when it was generally reported that a disease of most destructive mortality was raging among the poultry throughout the commune. Here, as at Paris, the cry of "poisoning" was loudly made; all persons who were persuaded that the food and drink of mankind were mixed with poison, found no difficulty in convincing themselves that similar villany was practised in the poultry yards. But the mortality soon reached such a pitch, that this idea was abandoned, and then it was generally reported, that the cholera was the cause of the epizootic.

Wishing to arrive at the source of these rumours, I learned, that since the 3d of April, a vast number of fowls had perished in several houses situated in different quarters of the hamlet. During the first days of the disease, the number of deaths had been very considerable, after which period the birds were killed by the owners on the occurrence of the first symptoms. In one fowl-yard, of eighty cases, one or two alone recovered. Many remedies, amongst others bleeding under the wings, had been in vain resorted to. *A considerable quantity of the diseased fowl had been eaten by the inhabitants without any bad effect.*

The causes of this malady appear to me altogether unknown; and I saw no reason for supposing it to be contagious. Nevertheless, when a single death occurred in a fowl-yard, the mortality only ceased when it had no more victims to destroy. The most cleanly poultry feeders suffered as severely as the most filthy. The kind of food had no influence on the disease. The fowls at large in the streets of Choisi were attacked with equal severity with those perpetually confined or occupied in incubation. *Rabbits, geese, and ducks, however, lived with impunity in the same yards where the hens were universally perishing, and three turkeys only were affected.*

The disease, generally speaking, commenced in the morning. The hens were noticed to be dull and weak, their wings drooping, and their crops distended with undigested food. In a few cases the disease commenced during the day, and lasted four-and-twenty hours. The respiration was short and hurried, the motions of the heart accelerated, and diminished in force in proportion to their increase in velocity. In almost every instance there had been numerous whitish liquid dejections. The gullet was distended with thready mucus, which escaped from the beak. The combs were of a livid red colour, and the tint deepened to a violet as death drew near. After the disease had lasted from two to five hours, convulsions usually finished the sufferings

of the animal, and death was rapid in proportion to the quantity of the evacuations. In many cases I have learned, that the coldness of the sick birds was very remarkable. A few recoveries were noticed towards the termination of the epizootic. As far as I can find out, about 500 fowls died of the disease, or were killed in consequence of the development of its symptoms.

After death the colour of the skin was the same as in fowls strangled without being bled. The bodies were warm for at least three hours, and the cadaveric rigidity was very remarkable.

I have taken much pains in seeking for any pathological alterations which might explain the cause of the disease, but my research was quite in vain. The brain was white, and free from congestion. The heart was bloodless, and of its usual consistence. The aorta contained fluid blood. The lungs were rosy and crepitating. The mucous membrane of the œsophagus frequently shewed little papillæ, surmounted here and there with a white point, like a minute grain of sand, adhering to the centre of the papilla. The crop always contained food; the gizzard was strongly contracted; the intestine presented occasional reddish patches, especially in the situations where little parcels of worms were found. The liver was gorged with black and tarry blood; the gall-bladder distended with thick green bile.

This epizootic is quite different from the "*maladie charbonneuse*" of Chabert, and from that described by Boronio. Neither has it any analogy to the "pip," for the tongue was always in a natural state.—*Journal Hebdomadaire.*—(Lancet, July 7, 1832.)

⁂ We invite the attention of our readers to this extract. We have heard a great deal about cholera in horses and cattle; and we know that in some of the fens and moors there was an epidemic, in the early part of the year, that carried off great numbers of young cattle; but it seemed to be one of the varieties of catarrhal fever, or influenza. For our own parts, we have not observed any particular unhealthiness among domesticated animals; and there have been few seasons in which we have met with less diarrhœa. We invite the attention of our readers to this subject, for it is a very important one.—Edit.

LATEST ODDS—GOODWOOD CUP.

6 to 4 agst. Priam; 7 to 2 agst. St. Giles; 6 to 1 agst. Rowton; 8 to 1 agst. Lady Fly; 15 to 1 agst. Beiram.

ST. LEGER.

8 to 1 agst. Returner; 9 to 1 agst. Margrave; 10 to 1 agst. Perion; 11 to 1 agst. Julius; 12 to 1 agst. Fang; 12 to 1 agst. Ludlow; 12 to 1 agst. Trustee; 16 to 1 agst. Burgomaster; 20 to 1 agst. Birdcatcher; 25 to 1 agst. Conrad.

To Correspondents.—Mr. Vines on Mr. Turner's Theory of Animal Heat, and Mr. Brewer's Case of Perforation of the Duodenum by Bots, in our next.

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MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XIX.

The Thyroid Glands and the Trachea.

WE have completed our survey of that important and complicated machine, the larynx. Before we inquire into the structure of the simpler continuation of the respiratory tube, the trachea or windpipe, there is a small, firm, ovoid body, of a colour varying from dark-red to black, placed on each side of it, and immediately below the larynx, which attracts our attention. These are

The Thyroid Glands.

Their Structure.—Glandular they evidently are. In proportion to their size, they are abundantly supplied with blood. A considerable artery is given off from the carotid, immediately below its three terminating divisions. The veins may be clearly traced into the jugular, and are likewise of considerable comparative bulk; and the nerves are derived from the guttural filaments of the par vagum. The thyroid glands adhere to the trachea by dense cellular substance, and they are connected with each other, not as has been generally described by an isthmus passing over the front of the windpipe, but by a kind of appendix, through which, however, no intercommunication of vessels can be traced. In the colt and the puppy they are considerably developed, and of a red colour, somewhat dark; they diminish with the age of the animal, and in old horses become of a brownish or even blackish grey. When we submit them to minute dissection, we find that they are enveloped by very abundant cellular tissue, under which is their peculiar investing membrane, smooth and glistening. We cut into them, and, as you

perceive, their substance is very dense, and not a trace of any fibrous structure can be seen; no folding together or convolution of capillary secreting vessels; nothing like the penicilli of the liver, or the cryptæ of the kidney, or the curious apparatus of the pancreas: there are no secerning or excretory vessels; no cells, no ducts; but one uniform mass of condensed pulpy matter. A small portion of fluid, or rather of moisture, follows the knife, which does not seem to proceed from any tube or reservoir, but to be, as it were, extravasated through their whole substance. In fine, although we reckon them among the lymphatic glands, we know nothing at all of their function. They are found in all our patients, and, I believe, in all the mammalia.

Their Diseases.—Like the lymphatic glands, they are subject to disease, and to disease connected with that constitutional affection,—that debility of the circulating or the lymphatic system, or both, which is characterized by the name of scrofula, and here implicating the glands primarily, and not the ducts of another division of the absorbent system. Glanders and farcy, as we have already shewn, are not, with strict propriety, strumous diseases; but two classes of our patients, the dog and the swine, will afford illustrations of true scrofula, in the enlargement and occasional ulceration of the thyroid glands; indeed, from these swellings in the latter animal the disease *scrofula, swine swellings*, took its name.

Description of Bronchocele in the Dog and Swine.—I have, in two or three instances, seen some enlargement of the thyroid glands in the colt and in the calf. In the sheep it is far more frequent. In young lambs, early dropped and half starved, it will generally be found; and in every case in which I have had opportunity to trace the progress of the rot, I have found enlargement of the thyroid glands contemporary with, or marking out, the precise period when the stage of debility and emaciation commenced. In the swine and the dog, however, we have most frequent opportunities of observing this disease. The first is not, indeed, often submitted to medical treatment; but you cannot have failed to observe in young pigs neglected, half-fed, and ricketty, enlargements of a considerable size on each side of the upper part of the neck.

In the dog it is almost daily forced upon our notice. If a spaniel or a pug-puppy is mangy, pot-bellied, ricketty, or deformed in the joints, he seldom fails to have some enlargement of the thyroid glands; the spaniel and the pug are most subject to this disease. The jugular vein passes over the thyroid gland; and, as that substance increases, the vein is sometimes brought into sight, and appears between the gland and the integument, fearfully

enlarged, varicose, and, as it were, bursting. The trachea is pressed upon on either side, and the œsophagus by the left gland, and there is difficulty of breathing, and difficulty of swallowing; the poor animal pants distressedly after the least exertion, and I have known absolute suffocation ensue. In a few cases ulceration has followed, and the sloughing has been dreadful; yet the gland has still preserved its characteristic structure. Although numerous abscesses have been formed in the lower part of it, and there has been considerable discharge, viscid or purulent, the upper part has remained as hard and almost scirrhous as before.

Cause of Goître.—In many cases this enlargement of the thyroid glands is plainly connected with a debilitated state of the constitution generally, and more particularly with a disposition to rickets. I have rarely seen a puppy that has had mange badly, and especially if mange was closely followed by distemper, that did not soon exhibit cretinism or goître. Puppies half starved, and especially if dirtily kept, are thus affected; and I have generally found it connected with a loose skin, flabby muscles, enlarged belly, and great stupidity. On the other hand, I have seen hundreds of dogs, to all appearance otherwise healthy, in whom the glands of the neck have suddenly and frightfully enlarged. I have never been able to trace it to any particular food, whether solid or liquid, although it is certainly the frequent result of want of nutriment. Two or three friends, of whom I particularly inquired, have told me that it is not at all prevalent in those parts of Derbyshire where the goître is oftenest seen. It is periodical in the dog. I have seen it under medical treatment, and without medical treatment, perfectly disappear for awhile; and soon afterwards, without any assignable cause, return. There is a larger breed of the Blenheim spaniel in which this periodical goître is very remarkable; the slightest cold is accompanied by strange enlargement of the thyroid glands, but the swelling altogether disappears in the course of a fortnight. I am quite assured that it is hereditary; no one that is accustomed to dogs can doubt this for a moment.

Treatment.—I am really ashamed to confess how many inefficient and cruel methods of treatment I many years ago adopted. I used mercurial friction, external stimulants, and blisters; I have been absurd enough to pass setons through the tumours, and even to extirpate them with the knife. The mercury salivated without purpose—the stimulants and the blisters aggravated the evil—the setons did so in a tenfold degree, so that some have died under the irritative fever that was produced; and although the gland, when dissected out, could not be repro-

duced, yet I have been puzzled with the complication of vessels around it, and in one case lost my patient by hæmorrhage, which I could not arrest. The burnt cork I have given week after week with doubtful effect, and in the majority of cases with no effect at all. When the power of iodine in the dispersion of glandular tumours was first spoken of, I eagerly tried it for this disease, and I can recommend it to you as almost a specific. I do not recollect a case in which the glands have not very materially diminished, and in the decided majority of cases they have been gradually reduced to their natural size. I first tried an ointment composed of the hydriodate of potash and lard, with some, but not satisfactory, result: next was given the tincture of iodine in doses from five to ten drops, and with or without the local application; but I found at length that the simple iodine, made into pills with powdered gum and syrup, effected almost all that I could wish. I begin with the eighth of a grain for a small dog, and rapidly increase it to half a grain morning and night. A larger dog may take from a quarter of a grain to a grain. I have in a few instances seen loss of appetite and slight emaciation produced; but then, suspending the medicine for a few days, no permanent ill effect has ever followed the exhibition of iodine.

I shall hereafter have to speak of its beneficial effect in scirrhous tumours and cancer of the mammæ—in sarcomatous enlargements about the joints of cattle, and in all that debilitating train of disease connected with enlarged mesenteric glands.

The Trachea.

Description of the Trachea.—We will now follow the course of the inspired air from the larynx to the lungs, and we find it conveyed through a singularly constructed tube, passing along the anterior portion of the neck, and reaching from the lower edge of the cricoid cartilage to the lungs; in the commencement of its course, somewhat superficially placed; but, as it descends towards the thorax, becoming gradually deeper and more concealed.

Anteriorly the trachea presents a hard cylindrical surface, somewhat flattened, connected with the thyroid glands, and to a greater or less degree covered by, as you will perceive, the sterno-thyro-hyoideus, the subscapulo-hyoideus, and the sterno-maxillaris muscles. Posteriorly the surface is softer, flattened, or rather depressed, and thickly covered by a laminated tissue, which supports the extremities of the cartilaginous rings, and sustains in their places the trachea itself, and the œsophagus, the carotids, the par-vagum and the organic nerves.

Structure.—In order to discharge its functions as an air-tube,

it is essential that it should always be pervious, or at least that any obstruction to the process of respiration should be but momentary. Attached to a part endowed with such extensive and varied motion as the neck, it is also necessary that it should be flexible. Can we find a substance firm, elastic, and yet flexible, to accomplish every desirable purpose? Cartilage is the most elastic substance we know, and at the same time possesses a certain degree of flexibility. The trachea is composed of cartilage, but not of one entire piece, for that would necessarily be either too thick and firm to be flexible, or, if it were sufficiently flexible to accommodate itself to the motion of the neck, it would be too weak to resist even common pressure or injury, and the passage through it would often be inconveniently or dangerously obstructed. Beside, it is necessary that this tube should occasionally admit of elongation to a considerable degree. When the neck is extended in the act of grazing or otherwise, the trachea must be somewhat lengthened.

The structure of the cartilage of the windpipe is admirably adapted to effect every purpose. It is divided into rings, 50 or 52 in number, each possessing sufficient thickness and strength to resist ordinary pressure; and each constituting a joint with the one above and below, and thus admitting of all the flexibility that can be required. These rings are connected together by an interposed fibro-ligamentous substance, extensible, elastic, and yet so strong that it is scarcely possible to rupture it; and the fibres of this ligament not running vertically from one ring to another, and so admitting of little more motion than the nutation of the head, but composed of two layers running obliquely and in contrary directions, so as to adapt themselves to every possible variety of motion. Take any two rings, and see the extensibility of the ligament, the freedom of motion which it gives in every direction, and the rapidity and recoil with which, when the force that separates them is removed, they return to their natural state of approximation.

These rings are thickest in front, and project circularly, opposing an arch-like form. There, too, the ligament is widest, to admit of the greatest motion in the direction in which it is most needed, when the head is elevated or depressed. Laterally these rings are thinner, because they are to a great degree protected by the surrounding parts; and posteriorly, as you see, they overlap each other, and that extensively, but in an apparently irregular manner; and the overlapping portions or plates are connected together by a strong ligamentous substance. This, while it does not impede the motion of the tube, gives firmness and stability to it. You will immediately perceive, that, if the fibro-ligamen-

tous connecting bands had passed all round, there would have been a looseness and want of strength about the tube that would have been exceedingly inconvenient, and not at all adapted for the free passage of air through it. The connecting ligament in front and on the side, with its oblique fibres in contrary directions, and the overlapping of the cartilages behind, and they bound together also by a ligamentous expansion much less extensible, will unite all the flexibility and strength that can be needed.

The Transverse Muscle.—If we look within the trachea of the horse, we find another very curious structure. At the points at which posteriorly the rings begin to bend inwardly, a muscle is found stretching across the trachea, and dividing the canal into two unequal portions, the anterior one constituting the proper air-passage, and the posterior one filled with cellular or reticular texture.

To Mr. Sewell, I believe, we are indebted for first directing our attention to this transverse muscle. It is a little caricatured in his plates, but it is so easily demonstrated, that it is not a little discreditable to former veterinary anatomists that they had overlooked it. His theory of its use I understand is, that "by the progressive action of its fibres from below upwards, it assists in the expiration of the air in the same manner as the successive action of the muscular fibres of the œsophagus from above downwards assist, or rather cause, the descent of the food." Were the interior of the trachea surrounded by muscular fibres, or had it a proper muscular coat like the œsophagus, I could imagine this to be the case, yet only in the slightest possible degree, for we have to do with untangible gas, and not with a solid pellet of food; but when we have a simple transverse muscle, occupying only the base of the semi-elliptical passage, and, so far as we can prove, having but little power in contracting the area of the tube, and I would say, most undoubtedly, not sufficient to produce that progressive, rapid, vermiform contraction of the trachea which would be required, I must confess that I cannot assent to this theory.

Mr. Sewell likewise, I understand, considers broken-wind to be the result of paralysis of this muscle; a theory to which I can by no means yield assent: but more of this in the proper place.

As little disposed am I to subscribe to the hypothesis of that excellent veterinarian, and my esteemed friend, Mr. Percivall, who says that "this self-acting band appears to him to have been added to the tube to enable it to enlarge its calibre." I really cannot conceive how the *contraction* of the base of a semi-elliptical passage can, upon any principle of mathematics, *en-*

large the area of that passage. As the base is diminished, the area of the figure (unless the parts are expansible, which has not been proved to be the case with the anterior portion of the cartilaginous rings) must diminish too. Waving all this, I cannot conceive of the necessity of such an auxiliary for such a purpose. The force which can expel the air from the narrow and winding bronchial tubes, although acting there with so much disadvantage on account of the surrounding thickness of parenchymatous substance, wants no aid in propelling it through the unobstructed tube of the trachea.

What theory have I to offer? None that I yet dare to urge with any great degree of confidence. I find, however, this muscular band at the base of the ellipse precisely at that part which the builder is most solicitous to strengthen. I find it, if not the buttress of the arch, yet the connecting tie by which it is bound together; the chain which prevents it from *spurring out* at the bottom, where the principal stress lies. Then I naturally, I would almost say necessarily, connect this muscle with the idea of strength. *It is the tie which is to prevent this arch from spurring out.* In the natural state of the trachea, I can conceive this muscle to be, as it were, quiescent; but when any considerable pressure is made upon the crown of the arch at the upper part by tight reining, or at the lower by an ill-made collar, or any where else, by brutal or accidental violence, the moment the arch begins to be depressed at the crown, and consequently disposed to spur out at the base, this muscle contracts, and, by preventing the expansion of the base, prevents also the further depression of the crown, and preserves the part from serious injury.

Again; I can conceive that when, in violent exertion, so great an additional quantity of air is needed to answer to the increased demand for arterialized blood, and every portion of the respiratory canal is on the stretch, this connecting self-acting band may preserve the trachea from injury, and possibly from laceration. The ligamentous connexion of the thin rings at the anterior part of the trachea might give way: and this at least I know, that, connected by cellular substance with, if not principally inserted into, the lining membrane of the trachea, the contraction of this muscle will tighten that membrane, will remove every inequality and corrugation, and so assist the passage of the air, both in inspiration and expiration. This, however, will afford matter for the consideration of future veterinary physiologists. We have too many points yet to settle; and we have been too shamefully indisposed to enter into the serious consideration of them.

The Trachea within the Thorax.—Well, gentlemen, we trace the trachea down the neck until we arrive at the thorax; there it

suddenly alters its form to adapt itself to the narrow triangular aperture through which it is to pass. It becomes a narrower ellipse. When it has entered the chest, it preserves the same cartilaginous structure; for if it has not the pressure of the external muscles or of accidental violence to resist, it is exposed to the pressure of the lungs in the act of inflation, and, like every other thoracic viscus, it shares in the pressure of the diaphragm and the intercostals in the act of expiration. Having entered the chest, it passes, as you will see, a little to the right, leaving the œsophagus on the left. It gradually separates from the dorsal vertebra, with which it became connected when it had left the neck; it passes through the duplicature of the mediastinum to the base of the heart; and, beneath the curvature of the posterior aorta, it divides. The divisions are the bronchial tubes.

When the trachea has entered the thorax, and begins to detach itself from the dorsal vertebræ, a provision is made to supply that support which it had previously received from the bones of the neck and spine. The rings are as perfect as before, and are continued round the trachea, and overlap each other, and are connected together by dense ligamentous substance; but a new piece of cartilage now begins to present itself; it first appears behind, or rather above, the tenth ring from the bottom—it spreads over the union between the posterior ends of the rings, and is attached to a portion of these rings by the same kind of dense cellular ligamentous substance, extending a little anteriorly on each side; it holds them in closer and firmer contact with each other; it stands in the stead of both the transverse muscle which here begins to disappear, and the support of the cervical and dorsal vertebræ; and it prevents separation of the rings, when the trachea is distended by an additional quantity of air during violent exercise. It spreads down upon and defends the commencement of the bronchial tubes. There are beside three smaller plates of cartilage, not only covering the bifurcation of the trachea, but reaching a considerable way down the two main divisions of the bronchiæ. Anteriorly, or now inferiorly, the last ring has a central triangular projection, which also covers and defends the bifurcation of the trachea.

The Lining Membrane.—The membrane lining the trachea is a continuation of that of the larynx. It is paler than that of the larynx, and does not possess its acute sensibility; yet inflammation of it, or the presence of foreign bodies, is sometimes painful enough. It is covered by numerous follicular glands which secrete a thick but not very abundant fluid. That portion of it which covers the transverse muscle is comparatively loosely at-

tached to it, and presents an uncertain number (from ten to fifteen) of plicæ or folds, running longitudinally from the larynx to the bronchial bifurcation. These evidently prove that the trachea is capable of dilatation, probably when severe exertion is required from the animal. The transverse muscle is not concerned in this dilatation, for the action of a muscle is to contract; but it yields more readily than any other portion of the tube, or is, in fact, the only part that yields. When the muscle has yielded or been distended to a certain degree, it begins to contract, and limits the augmentation of the tube; or while the tube is dilating it offers a certain resistance, which, if it does not altogether prevent the augmentation of calibre, yet considerably restrains it. The ligamentous connexion of the plates of cartilage behind would not do this so effectually or so safely.

The Bloodvessels and Nerves.—The arteries of the trachea are a branch of the thyroideal at the upper part, and below are various ramifications from the ascending common trunk of the carotid. The lowest part is supplied from the posterior aorta, and principally from the bronchial arteries. The veins of the trachea empty themselves by several small outlets into the jugular. The nerves above the thorax are chiefly derived from the ascending branch of the recurrent nerve. Within the chest, they are obtained more from the great organic nerve than from the eighth (par vagum), and the union of many filaments from both of them forms the tracheal plexus, clinging around the trachea between the first and second ribs.

The Trachea in other Animals.—The trachea of the ox is proportionally much smaller than in the horse; so much air is not wanted, because he is not a beast of speed, and rarely goes beyond the walk or trot. The cartilaginous rings are narrower, and considerably thicker, and of less firm consistence, than in the horse, and the interposed ligamentous substance wider. A tube of looser construction will be sufficient for the portion of air which he needs in respiration; and, gathering usually the whole of his food from the ground, and gathering it more slowly, and being longer occupied about it, a greater degree of extension is required, and therefore more interposed ligament is given. There is not the careful and intricate overlapping of the cartilages behind; they are simply brought into approximation with each other, and their opposing edges project behind, so that the trachea is less firmly bound to the cervical vertebræ; nor is there any transverse muscle, because the calibre of the tube is not so much varied as it is in the rapid progression of the horse; but the lining membrane is denser, and more extensible, and more elastic, and is capable of discharging, although imperfectly, a

function similar to that of the transverse muscle. Finally, although the triangular prolongation is found, but less developed, on the anterior or under side of the trachea at its termination, the additional plates of cartilage on the posterior or upper side are wanting, and for the same reason, because this portion of the tube is not subject to such occasional distention, and so much strength is not required. The number of rings in the ox is more than sixty. In the dog there are thirty-eight. In the swine forty. In the cat thirty-eight, with a vacuity between the extremities of the cartilage behind, and not forming a perfect ring.

The Trachea in Birds.—In birds there is a singular variation in the form of the trachea. In some of them, and particularly in water-birds, it is immensely long; extending not only down the neck, but forming a circuitous course through the sternum, which is hollowed out to receive it, as you may perceive in this skeleton of the wild swan. The probable intention of this was to form a kind of reservoir of air to be gradually respired while the animal is diving. This, however, is found in greatest perfection in the male bird, and therefore is likewise connected with the voice; but, without this convolution, the length of the neck in birds would always render the trachea in them comparatively longer than in the mammalia.

So long a tube requires to be more strongly constructed; and therefore, with the exception of the two first, the rings of the trachea are mostly ossified; the larynx also is entirely ossified. There is a peculiar muscular structure about the larynx and the os hyoides, which permits the bird to elongate the trachea to an extent no resemblance to which is found in the quadruped.

The double Larynx.—The trachea of birds is, as you may observe in these various specimens and plates, curiously furnished with a double larynx, or rather a larynx divided into two parts; one being placed at the superior, and the other at the inferior end of the tube. My friend Mr. Yarrell, in some excellent papers published in the Transactions of the Linnæan Society, has placed this in a plainer and more pleasing point of view than I have elsewhere seen. The superior larynx consists of three small *bones,* answering to the posterior part of the cricoid cartilage; a large bony plate, terminating in a point, and answering to the thyroid cartilage; and the true rima glottidis with the arytenoid bones, bordering it, and defending and influencing its motion, and furnished with muscles bearing considerable analogy to those of our other patients. There is no epiglottis or covering to the arytenoid bones and the rima glottidis, as in the quadruped, but the opening is surrounded by numerous papillæ pointing backwards, which assist in directing and conveying the food towards

the œsophagus. The *inferior* larynx is singularly formed. At the termination of the trachea is a solid bony ring, with two connecting bony processes, presenting a double aperture, each answering to the commencement of the bronchiæ in the quadrupeds. Within these is found a duplicature of the membrane of the trachea, forming, as in the upper part of the trachea in our other patients, a fissure, or opening into the trachea, and being proper vibrating vocal ligaments. Tracing down the bronchial tube on each side, we find a thin membrane stretched across in the form of a drum, which is also connected with the voice, and the action of these membranes is governed by a system of muscles more or less complicated. Here are several specimens, some of them, and particularly birds of song and imitative birds, have from three to five pairs of muscles belonging to this lower or *bronchial* larynx; and by means of them the two rimæ glottidis, and the membranes of the bronchial tubes, are governed, as the rima glottidis in the quadruped; while in the quadruped the power is wanting of lengthening or shortening the trachea. Some birds have only one muscle, as the owl, the cuckoo, and aquatic birds, that can utter only one monotonous sound. In others, the muscular apparatus is quite wanting, as in the greater part of waterbirds, and some gallinacious birds, but not the domestic fowl.

We have, then, the reed of the clarionet placed in the bronchial larynx, and played upon with more or less skill by a simple or a complicated system of muscles; while the tone is modulated by the superior aperture, and the loudness or roundness, the harshness or the softness, of the voice is influenced by the convolutions and the complexity of the bony windpipe. But, gentlemen, I must break off: this would be a most seducing subject; nor should I wander far from my proper ground, for not only the domestic quadruped, but the imprisoned warbler is my patient; but I leave this portion of the respiratory apparatus of the bird to the learned lecturer on comparative anatomy, who will do it far greater justice than I have time or power to do.

OBSERVATIONS ON MR. JAMES TURNER'S THEORY OF ANIMAL HEAT.

By Mr. Vines, *V.S., Royal Veterinary College.*

On reading the number of The Veterinarian for June, I perceive that Mr. J. Turner, V.S., of Regent Street, has introduced to our notice a new and ingenious theory respecting the *production of animal heat* during respiration, by means of *purely mechanical agency;* namely, that the atmospheric air, in its ex-

pulsion from the lungs, undergoes "a degree of compression as equal to *three*, whilst the avenues through which the air has to escape are in conjunction as equal only to *one;*" and that, while undergoing this degree of *compression*, or condensation, a certain portion of caloric, which the air contained, is forced out or made "*to escape in a sensible form*, and which immediately becomes communicated to the blood circulating in the lungs, as *palpable heat:* in fact, that instead of the principle of heat being conveyed to the blood in the lungs in a *concealed or latent form*, as has generally been imagined, it is *actually evolved from the cells of the lungs themselves in a sensible form*, and consequently the great work of the arterialization of the blood is effected by a very simple and purely mechanical process."

Now, as Mr. Turner has given us a very brief and candid statement of his new theory respecting the generation of animal heat in the lungs, he will not, I am sure, object to my making a few observations, and putting a few questions to him on this most interesting subject.

In the first place, we ought to have been informed of the degree of mechanical pressure necessary to *increase the temperature* of a given quantity of atmospheric air when in a partially confined state out of the living body; and, in the next place, to have made the thing at all substantial, we ought to have been told that the air underwent a similar degree of mechanical pressure during its immediate expulsion from the lungs. Instead of this, Mr. Turner has only told us what he considers to be the degree of pressure necessary to simply expel the air from the lungs, and the correctness of which statement I very much doubt. We are informed, that the "degree of mechanical pressure necessary to produce the required effect on the distended air-bladders of the lungs is equal to *three*, whilst the avenues through which the air has to escape are, when taken in conjuction, equal only to *one*." Now, if this statement is correct, the air only receives *two* degrees of pressure during its expulsion from the lungs; and Mr. Turner must remember, that even then there is, after each expiration, a considerable portion of air still remaining in the lungs: consequently, if the air receives only two degrees of pressure during its expulsion, this I contend is not sufficient to affect the temperature of any given quantity of it, whether in or out of a living animal body; for, if I mistake not, I believe it will require several hundred degrees of mechanical pressure to affect the temperature of atmospheric air contained in a gun-barrel syringe: while even then the object is not effected unless the compression is produced in a *very rapid manner*. There is also a doubt in my mind, whether the increase of temperature of the

air does not arise more from *the quick and violent friction* than from actual compression. Therefore, unless Mr. Turner can bring forward some sounder arguments in support of his new theory, I contend that it must fall to the ground.

In addition to this, I would beg to inquire, how this gentleman accounts for the lowest order of animals, as also plants, possessing a power of supporting a temperature of their own; and whether he considers that such *power* is likewise dependent on mechanical principles?

For my own part, in order to account for the maintenance of the temperature of the arterial blood of a living animal body, I neither accord with the generally received theory of *latent* and *sensible heat* of the late Dr. Crawford, nor with the newly advanced one, by Mr. James Turner, of *palpable heat, the effect of mechanical pressure.* In short, I consider that there is no such thing in existence as *latent heat;* and that what *we call heat* is not a *tangible substance,* as the majority of physiologists and chemists have erroneously supposed, but one of the *phenomena* or *effects* which is constantly occuring *during the revolving change of matter from one form or state to another;* and that to theorize about *the matter of heat* being in a *latent form,* is just as absurd as to state, as a *real fact;* that a thing existed as a *tangible substance,* without our having made any *palpable* discovery thereof.

[To be continued.]

A CASE OF PERFORATION OF THE DUODENUM BY BOTS.

By Mr. J. T. Brewer, *V.S., Tavistock.*

As I do not recollect to have seen any account of bots having eaten their way through the intestines, with the symptoms accompanying the same, I am induced to forward to you a case which lately came under my notice.

I was called on to attend a mare, the property of J. H. Gill, Esq., of Bickham, near Plymouth, on the 16th of April last. Her symptoms were, a continual restlessness, often looking back towards her sides, pawing her litter, striking her belly with her hind legs, occasionally lying down, entirely off her appetite, extremities rather cold, mouth hot and dry, the schneiderian membrane highly injected, breathing a little quickened, pulse sixty, but strong and hard; she likewise appeared to be costive.

The mare for some days previously had been observed to carry her head very much on one side, contrary to her usual

custom. I should also remark, that she had been for some time labouring under a catarrhal attack, but was convalescent.

As she was in good condition I bled her to a considerable extent, at least 14 ℔, and ordered her to be kept on a low diet, consisting of bran mashes and a little gruel, with clysters to be thrown up occasionally; and to take every eight hours, until the costiveness was relieved, oleum lini ℥vi, magnes. sulphat. ℥iv, digitalis ʒss, mixed together in a quart of warm water.

On my arrival on the 17th, I found that no material alteration had taken place, and the pulse still sixty. I abstracted six quarts of blood, when a visible alteration occurred; she appeared much relieved, and her pulse in an hour fell to forty-five. As she remained costive, I continued the medicine, &c. as before, and had her extremities hand-rubbed and bandaged.

On the morning of the 18th, about five o'clock, the servant came to inform me, that at ten the night before she was taken (to use his description) in a dreadful state, continually lying down and suddenly springing up remarkably quickly, and, that which to me appeared surprising, she would not allow a light to be brought near her. She continued in this state for an hour, when she fell as if she had been shot; stretched out her feet and legs straight and stiff, the fore feet being firmly fixed against the wall. In this situation she remained until seven, p. m., when death terminated her sufferings. On my visiting her, I found her as described by the groom, apparently as if she was in a dead sleep; moderately warm all over; breathing laborious; pulse about 40, but not so strong as yesterday. It was literally impossible to arouse her; in fact, she appeared to be in a completely comatose state. I applied a blister over the os frontis, the temples, and the occiput, and gave rather strong stimulants with a solution of aloes, ordering them to be repeated every six hours: on my arrival about seven in the evening, I found her dead.

On opening the cavity of the abdomen, the first thing that attracted my notice was the great size of the stomach, which was remarkably distended with food. The intestines appeared healthy, with the exception of a small portion of the duodenum, rather more than six inches from the pyloric orifice of the stomach, which was considerably inflamed. On examining it more minutely, I discovered that near the centre there was a hole through which I could easily introduce my finger, and that the surrounding parts were in a highly gangrenous state. On laying it open, I found a great number of bots, at least 250, firmly adhering to the duodenum; and so close were they to each other, as completely to obstruct the passage of the fæces. On inspecting the cavity of the abdomen, I found four of these (in this instance)

mischievous little animals; two of them lying loose, and the other two attached to the peritoneum. I am very sorry that I could not stay to examine the brain, as I was eight miles from home, and the mail was expected to pass at some distance in a quarter of an hour. I trust that I may not be thought presumptuous in thus intruding on your valuable time, and that of my readers, who, by the by, I fear are getting heartily tired of me.

Sincerely wishing for the success and wide circulation of your very excellent publication, and with many, many thanks to those gentlemen who have so ably and kindly contributed to THE VETERINARIAN, from the perusal of which I have derived much pleasure, and, I hope, benefit,

I am, gentlemen, yours, &c.

RECOMMENDATION OF "THE VETERINARIAN."

By Mr. CHARLES C. BRETT, *V. S., Bletchingly.*

To the Editors of "The Veterinarian."

Gentlemen,

I BEG leave to offer you my sincerest thanks for the great benefit, as well as pleasure, I have derived from the pages of your invaluable Journal, THE VETERINARIAN; a work I should have acknowledged my obligations to ere this, but, to my regret and disadvantage, I only lately became acquainted with it.

A new era seems now to have dawned on our profession, and bright stars have arisen to illumine the heretofore gloomy path of the veterinary practitioner. By means of this Journal the members of the profession are brought into close bonds of unison, and medical acquaintance with each other; and by it we gain a knowledge of our several different modes of treating disease, and are enabled to borrow occasional wrinkles from the experience of our brethren. By its instrumentality we are made acquainted with the high degree of respectability and talent of many of our fraternity; and that we are not all so nearly and necessarily akin to the blacksmith as some suppose us to be; a circumstance most cheering and encouraging to the veterinary man of cultivated mind and gentlemanly habits.

With what decided advantages may the present race of surgeons now commence their practice on leaving the schools, compared with those ere THE VETERINARIAN was launched into being. They had then no light but what was gained at St. Pancras:

now the opinions and practice of the whole range of the profession are displayed before them to profit from. It becomes, therefore, the duty of every one of us, as the least he can do towards testifying his obligation to its patriotic editors, to feed THE VETERINARIAN by an occasional contribution from his record of cases. Scarcely any case is so trifling that some valuable and useful hint may not be drawn from it, provided it has been accurately noted at the time, and whether it be a successful or an unsuccessful one. This periodical is rendered *standard*, were it only from its containing the substance of the peculiarly clear and comprehensive, and, at the same time, highly interesting and pleasing lectures delivered at the London University.

The disinterested exertions of these heads of our profession, to rescue each of us individually from obscurity, may well entitle them to the appellation Horace in his beautiful Ode bestows on his patron Mecænas,

"O et præsidium et *dulce decus* meum."

I am, gentlemen, &c.

CASE OF FOOT ROT, OR LOW IN THE FOOT OF A COW.

By the same.

ON the 14th of July last, I was requested to attend a cow, lame with a diseased foot. The complaint had been tampered with by the cow-man, and had made considerable progress. I found it amazingly swollen about and above the fetlock; exceedingly hot, and exquisitely tender; while the hair and cuticle peeled off all round the joint, which was partially covered with blotches of unhealthy-looking sores. Between the claws there appeared a deep separation, and pieces of the common integument which had lost their vitality sloughed off. Another large sore appeared in front of the foot, at the upper part of the cleft; and the two claws at the posterior part of the fetlock joint looked as if they were rotting off: such were the symptoms.

Treatment.—I placed the foot in a large bag, and then filled it up with a warm bran poultice, sufficient to surround the limb on all sides, and suspended it by a cord passed over the withers, pouring into it frequently more warm water, to keep up its temperature. This was continued until the 17th with very little benefit, save that the wounds were cleansed. The inflammation being too high to do any thing with it yet, I discarded the poultice

and immersed the limb in a pail of warm water for some hours at a time. This greatly assuaged the inflammation and pain: she also licked it, so as to make it bleed freely, and which still further relieved her. On the 19th, a saturated solution of zinc was poured into the cleft, and a pledget of tow dipped in the same was drawn close between the claws. The running sores were dressed with powdered alum, and bole armeniac was dusted over them by way of an absorbent and astringent, and over all a loose bandage was passed. This treatment was continued daily until the 25th, when the wounds looked very much dried up, and scabbed over. From this time to the 7th of August it was dressed all over with a mixture of tar and powdered zinc, which had a surprising effect in restoring a healthy action. She is now sound, and turned out to grass in a dry hard meadow.

OLD REMEDIES FOR FARCY AND GLANDERS.

We have given the modern French doctrine of the nature and treatment of glanders. Mr. Percivall, in the third volume of his "Lectures," has presented us with a summary of the somewhat earlier, but never generally admitted theory of Dupuy; and in the preceding lecture, and for the avowed purpose of comparison, he has favoured his readers with a full and very correct statement of the doctrines taught at St. Pancras on this subject. These "Lectures" are in the hands of most of our subscribers, and justly estimated by them.

It may be amusing to hear how our forefathers set to work with these untractable diseases. We lately met with a curious account of this in one of the Harleian MSS., dated 1722:—

First, of the Local Treatment of Farcie.

Take new pigeon's doung and white wine vinegar, and mingle soe much of the vinegar as will, beating and stirring, make it as thicke as oyle. Then take yellowe arsenic and pounde it very fine and small. Then take it betweene your fingers, and as you beate the vinegar and doung together, let it fall in by little and little, until you have put in soe much as to make it of a scarlett collour; and then put in noe more, for it is strong ennoughe, but beate it well together, and with these anoynt the sore, and tye it uppe, and dry it with a hot barr of iron, and this in one dressing will cure it; except you see new knots to rise, then dresse them in the same manner.

Medical Treatment of Farcie.

First bloode your horse on both sides of the neck, and let him bloode very well, according to the strengthe of the horse. Then take a pinte and a halfe of hempseede, and bruise it. Then take three penny quills of quicksilver, and kill it with fasting spittle or vinegar, and put these into a quarte of ale and boyle it till it come to a pinte, and lett it stand until it be lukewarme, and give the horse fasting, and two or three times will kill it; (Qy. *horse or disease?*) but be sure there be three or four dayes betweene every drinke, and give him a mashe three or four houres after every drinke.

Medical Treatment of Glanders.

Take two quartes of stale, and put it into a pipkin close covered, and set it a yard deepe in a horse-dunghill three days and three nights. Then take four heads of garlick, and stampe them, and put them into the stale. When you take it out, boyle it until it comes to three pintes: boyle with it one pennyworth of horse-spice. Lett the horse fast all night, and in the morning give him a pinte of it, and soe as often as you shall see cause; butt commonly three or four mornings is ennoughe, but be sure there be three or four mornings betweene every drinke.

When you intend to give your horse a pinte of his drinke, the night before take a little pipkin, and put therein an egge, and cover it with the best white wine vinegar; then cover the pipkin close, and set it a yard deepe in a horse-dunghill, and in the morning take it out; and when you have given the horse his drinke, throwe this egge downe his throate whole; and this doe after every drink you give him. Then ride him halfe a mile upon a good round gallop; then set him upp and cloathe him warme with good store of litter, and four howers after a mashe.

The same research brought us in contact with old Barnaby Googe, who says, "Hieronimus Tragus teacheth, for a horse if he bee sicke and suddenlie fall downe of a disease that you knowe not, putt under his tonge a peece of ferne roote, whereupon you shall see him immediately voyde upwarde and downwarde what ever is in his bodye, and presently amende." "This," says Barnaby, "I knowe to be true, for I have proved it upon a horse of my owne."

Old Barnaby was a veterinarian of the right stamp: he studied the natural history and diseases of all domesticated animals. Of the hog he gives this valuable morsel of natural history: "Every pigge doth knowe his owne pappe that he was borne to, and

sucketh onely that, and none other. Yf you take awaye the pigge, the pappe drieth, as Plinie and experience sheweth."

The colic is a tolerably tractable disease in the horse, not always so in the ox; yet, with old Barnaby as our preceptor, those of us who live in the country need not to be much puzzled. "The colicke, or paine in the bellie, in oxen, is putt awaye in the beholdinge of geese in the water, specially duckes; for the sight of the ducke, as Vegetius and Columella says, is a presente remedie to this beaste."

One extract more from Master Barnaby, which may amuse if it does not instruct some good country housewives, many of whose husbands we know are our readers; it relates to the manufacture of cheese:—

"Cheese is alsoe made of the milke of cattell; the milke being poured into a vessell of earth, putting into it a little rennett, the quantitie of a wallnutte in a great vessell of milke, whereby it turneth into curd. Varro dooth better like the rennett of the levret or the kydde, then the lambs; howbeit we commonly use the calves rennet. Others use sundrie other meanes only with heat, warming it in tinne vessells, and after dipping these vessells in colde water, which is the sweetest and cleanliest maner. Others put in the seede of wylde saffron, and being so turned, the whey dooth greatly purge fleame. Others againe use the milke of the figge-tree, and then dooth the whey purge both choler and fleame. Some turne it with oxymell or syrope of vinegar, which is of all other wayes the holsomest. Some, besides, use the little skinnes of birdes guysardes, and others the flowres of wylde thystles and hartichockes."

A CASE OF ENLARGEMENT OF THE SPERMATIC CORD AFTER CASTRATION.

By Mr. Edwin Drake, *V. S., Barnstable, Devon.*

July 4th last, I was desired to attend a gelding belonging to the Rev. F. Hole, of Georgeham, which he stated had been castrated six years ago. From that time there had been a continued enlargement of the left spermatic cord. It discharged some pus two years ago, then closed again, and gradually increased up to this time. There was now considerable inflammation in the part; the swelling extended from the scrotum to the near thigh; the horse appeared in much pain, and kept stamping his near hind foot, and looking at the left flank. I ordered the part to be poulticed, and the horse to be kept on mashes, &c.,

and desired that I might be informed when the swelling again suppurated. On the 20th, Mr. Hole told me that there had been a great discharge of pus, and desired that I would see it on the following day. Having thrown the horse, I felt a large tumour in the scrotum somewhat resembling a cone with its base below, and its apex terminating in the abdominal ring. I then secured the tumour in my left hand, and made a longitudinal incision along the scrotum, as in castrating, and with great difficulty separated it from the tumour, to which it was firmly united by dense cellular membrane and numerous bloodvessels: many of the veins appeared to be quite in a varicose state. I then drew it out as far as possible, fastened the clams on the cord above its apex, cut it off, and cauterized the cord as in castrating. On laying open the tumour, which weighed nearly a pound, I found about two ounces of thick pus in its centre; its inner surface was indurated, but it was softer and more vascular towards its external portion. It appears to me to have been caused by the cord being left too long, and which, having united with the incision made in the scrotum, prevented the free discharge of pus. Mr. Hole desired the gelder to leave more of the cord than usual, in order (to use a provincial term) to give the horse *pluck*, and the animal had possessed, after castration, the same desire to cover as an entire horse.

A CASE OF DROPPING AFTER CALVING.

By the same.

On looking over the August number of the last year's Veterinarian, I saw an article on dropping after calving, by Mr. Leaver, of Willingdon, in which he mentions having met with a case a fortnight after calving. This induced me to send you an account of the following case, which I treated last December, and which occurred ten days after parturition. On the 13th I was desired to attend a cow, belonging to Mr. Andrews, of Pilton. He said that she had calved on the 3d, was at the time very fat, but had gradually lost flesh, become very weak, and had a constant discharge of white thick mucus from the vagina. The night before her illness he left her to all appearances as usual. I saw her at ten A.M. lying and groaning loudly; the pulse scarcely perceptible, but very quick; the extremities cold, and the nostrils, eyes, and mouth deeply tinged with yellow. She was very weak, and had made no dung since the day before. I gave her hyd. submur. ʒij, g. myrrh. pulv. ℥j, sodæ carb. ℥ij, with hot water sufficient for a drink; and had her flanks rubbed

with a stimulating embrocation. At two P.M. I again saw her, and then gave her sulph. lot. ℥viij, gum myrrh ℥ss, spt. æther nit. ℥j in warm water. At seven P.M. she had voided some dung, but appeared to be sinking fast; when I sent spt. æther nit. ℥j, g. myrrh ℥ss, pulv. zingib. ʒij. At ten P.M. a messenger came to tell me that she was very much swollen. I sent sodæ carb. ℥iij; but the swelling shortly afterwards disappearing, it was not given. I went by six the next morning, fully expecting to find her dead, when, to my astonishment, she was standing eating hay, which they told me she had been doing for more than a hour. I ordered small quantities of hay and potatoes to be given frequently, and as much oatmeal gruel as she would drink; on which diet she rapidly recovered.

ON FIRING THROUGH THE SKIN, AND ONE-SIDED NAILING.

By Mr. PRITCHARD, *V.S., Wolverhampton.*

IN A LETTER TO MR. JAMES TURNER.

Dear Sir,

ALTHOUGH I am personally unknown to you, I trust the liberty I have taken in addressing a few lines on the subject of some surgical operations connected with our profession will not be considered a forward step on my part. In August 1830, you addressed a communication on the subject of firing to *The Lancet*, to which you received a reply; which was fruitful in nothing but worthless opposition to a disclosure of your experience: you gave a rejoinder to that reply, with a promise to publish your experience and mode of practice connected with the actual cautery. As that publication has not yet appeared, and surmising that the cold water thrown upon your communication to *The Lancet* may have deterred the intention of proceeding to so publish, allow me to give you my experience on the use of the firing iron.

I am situated in a great hunting country, and intimately connected with a numerous field belonging to the Albrighton hounds. Those injuries occurring to the fore-legs, viz. ankle joint-lameness, have for the last twelve years had my serious attention: it is a lameness to which hunters are more liable than any other form of lameness, and many truly valuable horses are disabled by it. Injuries of the fetlock are in most instances followed by callous enlargement of the inner or outer ankle, or of both, just as the branches of the suspensory ligament may be the subject of over-extension, for to this it is in most instances owing. Blows on the joint have nothing to do with this species of lameness, but osseous

enlargement occasionally follows, or is consequent on injury done to the synovial membrane lining the pulley-like joint, formed by the flexor tendon passing the sessamoid bones. The inflammation of this membrane extends to the sessamoids, producing absorption and ulceration of the bone in like manner to what takes place in the navicular joint. This species of lameness in the fetlock has not been noticed by any one in the profession, at least no mention has been made of it that I know of. When this sessamoid disease takes place, firing and blistering avail nothing: lameness continues despite of all remedy; and to divide the metacarpal nerves, I fear, would not so far succeed as to bring a horse again to hounds; my conclusion on the result of such an operation prevents my recommending it. Where the lameness is owing to sprain of the binding ligament and consequent callous enlargement, deep firing will succeed, and deep firing only: superficial firing is of no use in these cases, and, as you justly observe, produces no effect beyond a common blister whenever it is performed. Some gentlemen may conceive that the less the iron can be traced after the hair is reproduced, the better the operation has been performed; but it is all fudge. The sporting man whose purse has felt the injuries done in the field; who has had repeated occasion to call in the aid of the firing-iron, and to whom an intelligent veterinary surgeon is oftimes a blessing, would form as superficial an opinion of those vets. as they of the firing. The sportsman wants to see his horse at the covert side, and fit to go: it is not a few eschars from the iron that would concern him; no, the great and all-absorbing question is, *is he sound?* I do not approve of deeply cauterizing a horse's joint beyond what is really necessary: when operating for enlarged ankle or spavin, I make no more incisions, and those longitudinally, than will act on the disease itself, but these I carry freely through the skin. I think firing a joint all over in what is termed penniform, and that through the skin, uncalled for; from four to six incisions being generally all that are required, over which I spread a blister immediately after firing: and, with my usual precaution to have the leg perfectly cool before I operate, I have never had to regret firing through the skin, but the satisfaction of seeing a recovery from lameness in many unfavourable cases.

I am, dear Sir, your's respectfully.

PS. I have to thank you for a very great improvement in the feet of a valuable mare of mine from one-sided nailing. Her foot is well formed, but the horn is weak: I feared the play at the inside quarter between the heel of the foot and that of the shoe would have speedily cut the horn away, but the reverse has been

the result: the heels are grown strong, and possess more horn than they have ever done since she came into my possession. I believe you have promised to publish a work on this subject, together with the navicular-joint lameness, and its mode of treatment. I am happy to see the spirit for publishing on the increase among men of experience in veterinary subjects; it is what we much want.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XX.

Tracheotomy—the Thymus Gland—the Bronchial Tubes.

The respiratory canal is occasionally, and to an annoying and dangerous degree, obstructed. Polypi occupy the nostrils. I related a case of one in a former lecture, which completely filled one nostril, and thrust the septum narium so far out of its natural situation, as to cause serious impediment to the breathing. Bony tumours have been formed in the nostrils, and obstructed the current of air. Tumours have distended the guttural pouches, and pressed into the pharynx. The tongue has become enlarged, or the membrane of the pharynx has been thickened by inflammation, and closed the passage to the larynx; or the tumour of strangles has pressed upon the part, and for a while obliterated the passage. Foreign bodies have lodged in the pharynx, or have even insinuated themselves into the trachea. The larynx has been distorted by tight reining; bands of coagulated lymph have been thrown across the tracheal tube; the membrane of the windpipe or of the larynx has been thickened, or ulcers have formed in the larynx or the trachea, so sensitive and so painful, that the act of breathing was laborious and torturing. In any of these cases we have anxiously inquired whether we might not establish an artificial opening for the passage of the air, when the natural one could no longer be used; and we have found it to be a very simple and safe operation to cut into or excise a portion of the trachea, either upon or below the point of obstruction, as circumstances may indicate.

Description of the Operation of Tracheotomy.—The operation being determined on, and the precise spot at which it is to be performed being selected, the horse is secured by the side-line, and kept standing; for he would probably be suffocated in the violent struggles with which he would resist the act of throwing.

The twitch is then firmly placed on the muzzle, and the head elevated—the operator, if necessary, standing on a stool or pail, that he may more perfectly command the part. A scalpel, scissors, bistoury, curved needles armed, and a moist sponge, should be held by an assistant.

The hair is first to be closely cut from the part; usually between the fifth and sixth ring. The integument is then to be tightened across the trachea with the thumb and fingers of the left hand, and an incision cautiously made through the skin, three inches in length; the operator being prepared to raise the knife at the least motion of the patient. The subcutaneous tissue will thus be brought into view.

The operator must have previously determined what kind of incision he will make into the windpipe. It has been usual to cut out a small slip in the centre, half an inch wide, and including one or two whole rings and the connecting ligament above and below. To this, however, there is serious objection. When some of the rings are thus perfectly divided, the arch will be weakened; its form will no longer be preserved; it will assume a sharper, roof-like shape; and the calibre of the trachea will be afterwards considerably lessened in that part, and the consequence of this will probably be roaring to a greater or less extent. An immediate pressing danger may be removed, but a permanent inconvenience will be established. Here are three windpipes, on each of which you will perceive the operation of tracheotomy has been performed. The cartilage has united, but it has united by approximation rather than by reproduction; the front of the trachea is sharp instead of round; the sides are fallen in, and each animal was probably a roarer.

Caution as to the Excision of the Rings.—I should advise you to adopt another method. Excise a portion of two of the rings, about half of their width, with the intervening ligament. The remaining portion will be sufficiently strong to retain the perfect arched form of the trachea; and if you thus have the aperture a little shorter, you must make it somewhat wider.

But when you have done with, and want to close, this artificial opening, will the cartilage (the edges of which cannot approximate) be reproduced? Yes, perfectly. Here is a beautiful specimen of it. The rings are a little thicker and wider, but they are perfect, and the arch of the windpipe is altogether preserved.

Well, then, gentlemen, if you are to excise a portion wider than it is long, you must not only dissect and turn back the cellular tissue, and the sterno-thyroideus muscle, to the required extent, but you must remove a portion of both, until you have sufficiently exposed the windpipe; your aperture will be about

half an inch square, or perhaps a little wider than it is long. There are no bloodvessels of any consequence to interfere with this dissection, and the hæmorrhage will be slight.

Manner of Excising the Rings.—The surgeon will now exchange the scalpel for a sharp-pointed bistoury, and plunging it into the ligament at the point which is to bound the aperture laterally, he will carry it upward until he has cut half way through the ring. He will then turn his hand and carry the knife transversely along the middle of the ring, until he has arrived at the boundary of the intended aperture on the other side; another turn will take the knife through the lower half of this ring, the ligament, and the upper half of the ring below: he will then pursue the same line along the centre of that ring, and afterwards, taking hold of the part now almost detached, he will complete the excision by one more turn upward. The bistoury should be keen, and the hand should glide as swiftly as the preservation of the form of the aperture and half the substance of the rings will permit. Some make a simple incision into the trachea, and then introduce a small tube. I shall speak of the tube presently: but this incision must be much longer than is necessary in the operation I have described; two of the rings at least must be cut through, and then there will be a longer, roof-like projection, and greater contraction of the trachea.

It is wonderful to observe what instantaneous and perfect relief this affords; the horse that was struggling for breath, and seemed every moment ready to expire, is in a moment perfectly himself.

No Tube to be inserted.—What is now to be done with the incision? That depends on the purpose to be effected by the operation. If the orifice is only to be kept open while some foreign body is extracted, or ulcer healed, or tumour removed, or inflammation subdued, nothing more is necessary to be done, than to keep the lips of the integument a little apart, and that may be effected by passing some strong thread through each, and somewhat everting them and tying the threads to the mane. A tube is not required; it is injurious rather than serviceable; it must irritate the lining membrane of the trachea, and, occasionally, at least, annoy the animal and produce considerable inflammation.

Tubes in permanent Obstruction.—If, however, there is any permanent obstruction, as a large tumour in the cavity of the nostrils, or distortion of the larynx or trachea, then a tube will be convenient. If it be two or three inches long, curved at the top, and the external orifice turning downward, with a little ring on each side, by which, through the means of tapes, it may be retained in its situation, it will answer every purpose. It should be taken out and cleaned daily, and the wound attempted

to be healed, leaving only a sufficient aperture for the canula. The French have an oval plate, of which here is an engraving, three or four inches long by two wide, to the inside of the lower part of which is affixed a canula or tube; immediately above the tube is a small moveable plate in the centre of the other. When this plate is up, or open, the horse easily breathes through the aperture, but when that is closed it is immediately put to the test, whether the natural passage for the air has again become pervious, and the plate may easily be pushed up if the respiration should be laborious, or suffocation should threaten. The shield-like plate is retained in its situation by tapes. This is an unnecessarily-complicated apparatus. The simple canula will answer every purpose.

Curious Case of Tracheotomy.—There is a singular but well-authenticated account of an operation performed by Barthelemy, one of the professors at the veterinary school at Alfort. There was great distortion of some of the rings of the trachea, and the animal breathed with difficulty, and became a roarer almost to suffocation; she was quite useless. Tracheotomy was effected on the distorted rings, and a short canula introduced. The mare was so much relieved that she was trotted and galloped immediately afterwards, without the slightest distress. Six months afterwards she again began to roar; it seemed that the rings were now distorted below the former place. Barthelemy introduced another canula, seven inches long, and which reached below the new distortion. She was once more relieved; she speedily improved in condition, and regularly drew a cabriolet at the rate of seven or eight miles in the hour; and this she continued to do for three years, when the canula became accidentally displaced in the night, and she was found dead in the morning.

Tracheotomy on other Animals.—Tracheotomy has been practised with success in cattle in cases of laryngitis, to which they are more exposed than the horse. No case has come under my personal inspection, but two or three are recorded in the French journals, in which immediate relief was afforded, and an eventual cure produced.

Once I operated on a dog with enormous tumour in the throat, which almost strangled the dog. The case was successful.

I assisted Professor Mayo in performing the operation of tracheotomy on a rabid dog, whose respiration was peculiarly laborious and stertorous: it produced no effect. The difficulty of breathing, almost threatening suffocation, seemed not to be dependent on any spasm of the glottis. The peculiar, harsh, grating, sound ceased; but the lungs heaved as violently as before, and the animal died in less than twelve hours after the operation.

Healing the Wound.—We will suppose that the desired effect has been produced. Time has been allowed for removal of the obstruction, or the subsidence of inflammation, and we wish again to close the artificial aperture. Nothing is so easy. We lightly scarify the cellular and muscular substance beneath, and the inside of the integument; we bring the lips of the wound neatly together, having previously scarified or pared them; we confine them by a suture; we place a little dry tow over the wound, and confine it by a loose bandage: and not only will the external wound be healed in a few days, but in prooess of time, as you see in this specimen, the cartilage will be reproduced, and the trachea be as perfect as ever. I need not caution you, I think, that in extensive inflammation of the aërial passages, or in inflammation of the lining membrane of the trachea itself, although attended with difficulty of respiration, and that almost threatening suffocation, this operation would be more likely to increase the inflammation than to produce a beneficial effect.

THE THYMUS GLAND.

Well, gentlemen, we once more trace the entrance of the trachea into the thorax, and it has scarcely penetrated between the first ribs ere, in a young subject, it comes in contact with an irregular glandular body situated in the doubling of the anterior mediastinum. This is of a pale pink colour, and of a lobulated structure like that of the salivary and pancreatic glands. It is the thymus gland, or in vulgar language, the sweetbread.

Its progressive Development.—In the early period of utero-gestation, it is of very inconsiderable bulk, and confined mostly to the chest, but during the latter months it strangely develops itself. The superior cornua protrude out of the thorax; climb up the neck between the carotids and the trachea; are evidently connected with the thyroid glands, and become parts and portions of the parotids. The parotid and the thymus glands are, in the latter months of fœtal life, essentially the same; composed of a multitude of granules arranged into lobules, which are of greater or less size, and enveloped by slight and easily lacerable membranes. When they are cut into, a milky fluid is observed in both, the composition of which has not, I believe, yet been examined. They cannot be dissected from each other; the one is a prolongation of the other, and the only difference in them is, that the parotid duct can be traced into the mouth, but no duct has ever, that I am aware, been traced in the thymus gland.

Identified with the parotid.—Here is a beautiful dissection of it. Prolongations of the thymus, and those of considerable sub-

stance, climb the whole way up the neck on both sides, loosely connected with the thyroid glands by cellular substance, and at length, as you will see, identifying themselves with and inseparable from the parotid. It is abundantly supplied, as you will perceive, by bloodvessels, and at whatever part we cut into it, a milky liquor exudes.

Singular Disappearance of the Gland.—Soon after birth a singular change takes place. It separates from the parotid. The separation increases—or, rather, the gland gradually disappears, beginning from above downwards; and in the course of a few months not a vestige of it remains along the whole of the neck. It more slowly diminishes within the thorax, and at length disappears there too, and its situation is occupied by the thoracic duct.

Function of the Thymus Gland.—Physiologists have not agreed on the function of the thymus gland, or, rather, very few of them have ventured on any explanation of its use. It is evidently connected with the state of fœtal existence—more particularly with the latter stage of it; and when the animal is born its function seems to cease, for it separates from the parotid, it disappears down the neck, and at length vanishes altogether. May not the hitherto unobserved connexion between the thymus and parotid gland in the fœtus throw some light on this subject? They seem to form the extremities of the same gland, and secrete the same fluid; and the parotid discharges its contents into the mouth. True the parotid after birth is a salivary gland, but is it of necessity so when connected with the thymus; or does it not then evidently secrete a different fluid—a milky one, and precisely of the same apparent character with the fluid which is often, or generally, found in the stomach of the fœtus? Magendie speaks of the opaque and greyish fluid found in the stomach, and which seemed to have undergone a digestive process; and all animals have a portion of feculent matter, if I may so term it, in the great intestines, the probable or evident process of a kind of digestion.

Connected with Nutrition.—The thymus gland, then, is possibly connected with the nutritive system. It pours a bland and milky fluid through the parotid duct into the mouth, and so into the stomach, in order to habituate the stomach by degrees to the digestive process, to prepare it for that function on which the nutrition of the animal is to depend; and also to prepare the intestines for the discharge of their duty—the separation of the nutritious matter, and the propulsion down the canal of that which is fæcal. I dare not affirm anything positively on a subject on which so many able physiologists have been silent; but

I think that from this connexion between the two glands, a glimmering of light breaks upon us; and that we have, in the later period of fœtal life, when alone the thymus gland is fully developed, the beginning of the first essay at the preparation for those important functions in which the stomach and bowels are to be afterwards employed.

The Bronchial Tubes.

We had in our last lecture followed the trachea through the duplicatures of the mediastinum to the base of the heart, and there, beneath the curvature of the posterior aorta, it separated into two tubes, corresponding with the two divisions of the lungs; these are *the bronchial tubes.* The right is somewhat larger than the left, because, as we shall presently see, the right lung is larger than the left. These main trunks plunge deep into the body and substance of the lungs. They presently subdivide, and the subdivision is continued in every direction, until branches from the trachea penetrate every assignable portion and part of the lungs. These are still air-passages, they are carrying on this fluid to its destination for the accomplishment of a vital purpose.

Their Construction.—It is still necessary that they should be pervious, or that their calibre should not be long obliterated. They are now exposed to a new pressure; a pressure alternately applied and removed,—to which they are compelled to yield, but against which they must, to a certain extent, struggle, and in consequence of that struggle regain their former calibre the moment the pressure is removed. The lungs in which they are embedded alternately contract and expand, and these tubes must contract and expand again with the lungs. The perfect cartilaginous ring of the trachea would not be sufficiently yielding, or fold up sufficiently close. Yet there must be resistance and elasticity. We have it, and we preserve the cartilage while we have it. The ring remains, but it is divided into five or six segments connected together. The ligamentous muscular band which connected each ring with its neighbours is no longer found; there is, however, a thin, yet strong and elastic substance. The lungs being compressed, the rings yield, and the segments overlap each other and they fold up and occupy little space; but elasticity, although latent, is still at work, and as the pressure is removed they start again and resume their previous form and calibre. It is a beautiful contrivance, equalled only by the structure of the trachea; and both exquisitely adapted to the situation in which they are placed, and the functions they have to discharge.

We shall have reason, however, to suspect, by and by,

that the bronchial tubes are not quite destitute of muscular apparatus and power, partly under the control of the will, but more connected with the energies of organic life.

Number of Segments.—In the larger divisions of the bronchiæ we can trace in each ring five or six of these segments. As the tubes decrease in calibre the cartilage is thinner and the segments are fewer. Here are plainly five; here we can trace only three. A little farther on, and we can perceive from the yielding nature of the thin cartilaginous ring, that it is divided into segments, but we cannot clearly ascertain the number, certainly not more than three: a little farther and the cartilage can no longer be traced, but the impression remains on the tube; it is there, but so thin and flexible as not to be distinguished from the lining membrane.

Termination of the Bronchiæ.—And so we trace the bronchiæ until they almost elude our sight: yet we can pretty satisfactorily follow any individual ramification until it arrives at one of the lobuli into which the substance of the lung is divided. We are sure that it enters there, otherwise the function of respiration could not be performed, but we have no ocular demonstration of the fact, nor of the real termination of these air-passages. There are some very pretty theories about this, and to a certain extent they probably are true, but we have no demonstration; and therefore, gentlemen, at the fragile membrane which covers the lobuli, we will, if you please, leave the bronchial tubes.

I should state that so far as we can fairly trace these tubes they are lined by a continuation of the membrane of the trachea. This membrane is subject to inflammation, which I shall hereafter describe.

Bloodvessels.—The bronchial artery rises from the posterior aorta and from the posterior face of the curvature of that vessel, by the side of the œsophagean artery, and sometimes from that artery itself. It advances in a serpentine direction towards the left bronchia, and there it divides and sends a nearly equal branch to the right and to the left. These arteries penetrate into the substance of the lungs, and ramify on the bronchial tubes through the whole of their course. The bronchial vein follows the course of the artery through the lungs, and pours itself into the vena azygos at its curvature, and close to the œsophagean vein. Sometimes these veins unite before falling into the azygos.

Before I proceed to the structure of the lungs generally, and particularly of these lobules at which I have arrived, I must look around me and consider the cavity into which I have entered. The structure and contents of the thorax will form the subject of our next lecture.

CASES OF LOCAL PALSY OBSERVED IN THREE HORSES.

By M. Clichy, *V. S., Joinville.*

CASE I.

The horse which forms the subject of this narrative was under treatment for a prick which the farrier had given him on the off hind foot. This accident, though slight, prevented the animal from working for fifteen days; and while he was confined in the stable he was fed as the other horses.

The 13*th* of November, 1826, the lameness being totally gone, his owner wished to work him; in leading him to the fields, and after about twenty minutes walk, he perceived that the animal was very lame on the near hind extremity. A few minutes afterwards he was astonished to see the lameness so much increased that the animal threatened every moment to fall on his near side. Although but three miles from me, it took more than three hours ere he could, with great pain, reach my infirmary.

This horse was in tolerably good condition, of the true Percheronne breed, and about 15½ hands high: he was about five years old, and belonged to M. Pelé, an innkeeper at Allaines (Eure-et-Loir). The following were the symptoms observed an hour after his arrival.

Loss of appetite, frequent neighing, slight cholicy pains: the animal lay down and then rose suddenly: in this latter position he bent the hind near extremity so much that the croup was brought almost on the ground, from the right side to the left; the flanks were very much agitated, and there were partial sweats under the belly and on the shoulders. The pulse was hard and accelerated, and the palpitations of the heart strong; the mucous membranes appeared red; the eyes haggard; the nostrils dilated, and the mouth hot and dry; the temperature of the body was higher than its natural standard, except in the paralysed extremity, the vital properties of which seemed diminished through its whole extent.

I administered several clysters, and drenched him with several bottles of mucilaginous decoction. An hour afterwards the animal was quieter, and not in so much pain; the hinder parts were so weak and tottering that he could scarcely stand without support. If he fell, the continual efforts which he made to raise himself were ineffectual. Towards evening he passed a thick and bloody urine; the pellets of dung were hard and shining. I passed two setons covered with blister ointment over the loins,

and took away six pounds of blood from the neck. Mucilaginous drinks and emollient clysters were administered.

On the next day the animal was in the same state, still lying on his litter, and making vain efforts to rise: I had him turned and placed on fresh straw. The appetite, which was quite gone yesterday, had returned. I ordered dry frictions of the diseased leg, which I afterwards wrapped in flannel. Mucilaginous and white drinks, emollient clysters, and bleeding five pounds.

Third day.—There were no new symptoms; the pulse was still hard; the setons had drawn well. I took four more pounds of blood, and gave six drachms of powdered nux vomica, and continued the former treatment.

Fourth day.—The animal was still down, but he appeared to me to be much easier; and he had changed his place. Seven drachms of nux vomica were given, with clysters, and white water.

Fifth day.—The discharge from the setons was abundant and good. The patient tried several times to rise; but the weakness of his hind parts disabled him from standing. His appetite was good. Until this time we had been obliged to feed him, and make him swallow the white water by means of a bottle; but now he could help himself by resting on his fore legs. I gave him white water, and continued the clysters.

Sixth day.—I was astonished to see the animal up: in this position he was trembling, the respiration quickened; the pulse quick and hard; the general uneasiness of the horse was very striking, and the paralysed limb was drawn up, while the croup was forced down towards it. This state of exacerbation lasted about fifteen or twenty minutes, during which it was impossible to make him move. These symptoms gradually disappeared: the horse then advanced a few steps towards the manger; he dragged his diseased leg after him, and if from inadvertence he supported himself on it, the flexion was so great that the haunch on that side almost touched the ground. I ordered a lotion to be rubbed into the paralysed leg, composed of equal parts of volatile oil of lavender, tincture of cantharides, and camphorated spirit. I gave him eight drachms of nux vomica in a drink, and the rest of the treatment was the same as before. The drink produced no sensible effect.

Seventh day.—I found the animal in the same position as on the preceding evening, nor did I perceive any particular change. I ordered eight grains of nux vomica; and in the course of the day, two frictions of the limb and on the spine, and three slightly purgative clysters, gruel, and a little hay: the appetite was very great.

Eighth day.—The horse in the same state. I gave the same drinks; the same friction and treatment.

Ninth, tenth, and eleventh days.—The animal continued in as much pain as ever; and groaned very much when he was forced to move. He had not yet lain down. I gave six drachms of nux vomica, two clysters of warm water, and ordered frictions.

Twelfth day.—On entering the infirmary, I found the horse lying on the affected side; he was in a sweat, and seemed in great pain: he had no straw under him, which shewed that he had struggled violently in order to rise during the night. I tried to induce him to rise by slight cuts with a whip: he raised himself on his fore legs, and tried to gain his feet; but he soon fell backwards, and then made renewed and fruitless efforts. In spite of the aid of several assistants, whom I had placed there for that purpose, we were unable to get him on his feet: we were, therefore, obliged to turn him on his right side, and the animal, being thus placed, raised himself easily enough, with one person at the tail to assist him. When he was up, he was so weak that he could not stand an instant without support; and very soon afterwards he resumed his ordinary posture. I ordered four drachms of nux vomica; the same treatment, and rubbing with the hand, and which were continued on the thirteenth and fourteenth days.

Fifteenth day.—In the course of the day I found the animal lying on his off side: he remained two or three hours in this position, and then got up by himself; nevertheless the paralysed limb did not seem better. I gave three drachms of nux vomica, two simple clysters, and ordered frictions.

Sixteenth, seventeenth, and eighteenth days.—I continued the same drinks, and the same treatment.

Nineteenth day.—The horse tried to use his lame leg, but as soon as he rested the weight of his body on it, he nearly fell. He was much better; he could lie down and rise without aid: the same treatment was continued.

Twentieth day.—I renewed the setons, as the tapes were almost rotten: the animal seemed to feel great pain when I passed my seton needle through the fistula; he tried to kick; and I was forced to put a twitch on him before I could finish the operation. I gave two drachms of nux vomica, clysters, and frictions.

Twenty-first, second, third, fourth, fifth, and sixth days.—I administered every alternate day a drachm of nux vomica, and ordered two embrocations every day, &c.; I also began to augment his rations.

Twenty-seventh day.—The animal was sensibly better; the paralysed extremity appeared to get stronger; he was not so lame, or at least, though the support was still weak, it was

steadier. I left off the nux vomica, and only made use of the frictions.

Twenty-eighth and ninth days.—The horse continued the same.

Thirtieth day.—I wished to make the animal walk in the stable, to be enabled to form a better judgment of the extent of his lameness. Each step he took seemed to give him great pain, and the affected limb gave way so much that the patella almost touched the ground: I was obliged to cease this slight exercise, as walking was yet too painful.

Thirty-first, second, and third days.—The flexion of the limb was the same, but the animal suffered less in walking, and he went about twenty or thirty yards in the court.

Thirty-fourth, fifth, and sixth days.—Nothing new appeared. I increased the walking, continuing it for nearly half an hour. The horse appeared fatigued by his exercise, and laid down almost directly after he was brought into the stable.

Thirty-seventh, eighth, ninth, and fortieth days.—Although the limb appeared as if it were shortened, and its flexibility continued the same, and the support was far from steady, yet the animal walked with less pain.

Forty-first day.—Not finding the lameness satisfactorily better, I wished to try the effect of acupuncturation on the muscles of the croup and the thigh; but I found it impossible to introduce a single needle, the skin was so hard and unyielding. I attributed this to the frequent frictions which had been applied to these parts. I therefore thought it necessary to make use of emollient fomentations in order to restore the skin to its usual softness; and after pursuing this treatment for seven or eight days, I was enabled to introduce into the muscles to which I have before alluded twenty needles, to the depth of eighteen or twenty lines, and which I did not withdraw for four-and-twenty hours. During this operation the animal did not testify the slightest sensibility.

Fiftieth day.—Thirty needles were inserted, from twelve to twenty lines in depth, here and there, over the whole of the superior region of the limb, that is to say, from the croup to the middle part of the leg, both on the external and internal surface. During this operation the horse testified much pain, and principally when I introduced the needles into the internal surface: they were left there thirty hours.

Fifty-first and second days.—Walking only: the lameness was still very great; nevertheless the animal could go a mile and a half, at a moderate pace, without fatiguing himself.

Fifty-third day.—I inserted forty needles in the same places as on the fiftieth day; and left them there for six-and-thirty hours.

Fifty-fifth day.—The bearing on the foot was firmer. He now

rested on the whole plantar surface, while before the toe only touched the ground.

Fifty-sixth day.—In spite of the extreme flexion of the limb, the animal walked much better; the tread on the sole was firmer; and the weather being fine, and the roads good, I ordered my groom to take him home to his master, which was a distance of about three miles, and which he walked in less than an hour without much fatigue. On his arrival they fed him and gave him water, and he soon afterwards laid down.

Four days afterwards I applied the same number of needles to the same places as on the fifty-third day, and let them stay in four-and-twenty hours.

I did not see my patient again until the sixty-fourth day; I then found him much better; the lameness was considerably diminished, and all announced an approaching cure: notwithstanding this, I inserted twenty more needles to the depth of twenty lines, and suffered them to remain twenty hours. I desired that he might gradually return to his ordinary food, and that a clyster should be administered occasionally, and that he should be exercised several times a-day.

Seventy-ninth day.—The lameness was very slight. There was hardly any perceptible emaciation of the muscles; the affected limb was, in a manner speaking, of the same size as the other, and it no longer appeared to be shortened. In spite of this evident improvement, I once more resorted to acupuncturation, inserting fifty needles from eighteen to twenty lines in depth, and I left them in four-and-twenty hours.

From this time the animal continued to get better, he regained his good condition and spirits; and by degrees took to his usual work, which he now performs as well as he did before the accident.

CASE II.

An entire draught horse, of extraordinary fatness, about eight years old, and about fifteen hands high, belonging to M. Leprince, jun., carrier in our town, was confined in the stable for eight or ten days by an inflammatory tumour, which had appeared on one shoulder, and which prevented his working.

November 23d, 1826.—He was taken out for walking exercise, as they had been in the habit of doing for the last two or three days. The horse appeared very lively, neighing and trying to rear when he saw other horses near him; but at a very short distance from the town the man who was with him was astonished to see him suddenly drop behind. It was not until after several cuts with the whip that he got up, and then it was only to fall

again; and it was with a great deal of difficulty, and the assistance of several persons, that he was brought back to the stable.

I was sent for, and before I began to examine the horse some of the spectators who had helped to bring him home told me that he had broken his right thigh, because in walking he dragged that limb after him. I, however, paid very little attention to this, and he was lying so that it was impossible for me to examine this limb. The following is the state in which I found him an hour after he was brought home:—

General sweating; the flanks heaving; the pulse small and frequent, the artery feeling under the finger like a cord; the eyes bright and red; the mucous membrane of the nose very much injected; the mouth hot and dry. I tried in vain to raise the animal; he struggled with his fore extremities and his near hind one whenever we tried to move him. I had him turned, and examined the limb which, according to the bystanders, was fractured. My researches were fruitless: there existed no fracture, but a complete paralysis had taken place, accompanied by the following symptoms;—the temperature of the whole extremity from the croup to the hoof was considerably diminished, the muscles were soft, the sensibility very dull, and the animal could not move that leg. Twenty minutes after this examination he passed without pain some bloody urine, and made several efforts to dung.

I began by giving him emollient drinks and clysters. As it was not long since the animal had eaten, I thought it better to wait some hours before I took eight pounds of blood from the neck; immediately afterwards I inserted two setons, saturated with the essential oil of turpentine, in the affected thigh. In the evening white water was given to him: he drank it with avidity, and tried to eat.

The next day the pulse was still hard; I took the same quantity of blood as before: the setons had already slightly diminished the tumefaction. The same treatment was continued. I ordered stimulating embrocations to be well rubbed twice a-day on the limb and along the spine.

Third day.—The horse in the same state; but the pulse scarcely so strong. Four pounds of blood were taken, and four drachms of nux vomica administered. The other treatment was continued as before.

From the fourth to the twenty-first day.—I gave every morning fasting from four to six drachms of nux vomica; the frictions were uniformly continued twice every day, and three or four clysters were administered. The discharge from the setons was very

abundant, and they were re-stimulated from time to time with blistering ointment. The animal retained his appetite; and although he was lying down, all his functions, excepting that of locomotion, were unimpaired. He was turned every day, and fresh straw was put under him, because, without this precaution, the long friction on one side, and the heat of the dung, would, undoubtedly, have produced excoriation of the skin. Until now he had not attempted to rise, and it was not until the twenty-second day that he tried for the first time.

The twenty-third and fourth days I left off the drinks, but continued all the other treatment.

Twenty-fifth day.—I perceived a change for the better: the horse began slightly to move the paralysed limb; and with the aid of several persons I had him raised. As soon as he was up he staled abundantly, and fell down on his litter a few minutes afterwards: the leg had already acquired a certain degree of heat and sensibility. I ordered six drachms of nux vomica, frictions, white water, and augmentation of the ration of hay.

During the twenty-seventh and eighth days the animal often got up, but he did not remain long standing, for as soon as he had eaten and drunk, and performed all his functions, he laid himself down again.

From the twenty-ninth to the thirty-first day he was sensibly better. He could stand for several hours, and walk in the stable; but it was remarked that at each step, as in the horse mentioned in the former case, he was on the point of falling on the right side, and which did sometimes actually occur. The pulse was soft and regular, and the setons discharged a great deal. I ordered two drachms of nux vomica and two frictions a-day.

From the thirty-second to the thirty-sixth day the improvement continued. The animal was now constantly on his feet; still the limb continued weak and benumbed. I left off the former treatment, and began by emollient embrocations to prepare the diseased limb for acupuncturation.

Without useless repetition, it will suffice to say, that I employed the same means and followed the same rules as in the former case; and that after having applied the needles three times, he was very much better: the limb had recovered its feeling, and its temperature was equal to that of the rest of the body. Its flexion was much diminished, and the tread of the foot on the sole was much firmer. The horse could now without fatigue support a tolerably long walk.

I applied the needles twice more, and then suspended all

medical treatment; and on the sixty-first day the animal returned to his ordinary work.

CASE III.

The horse which forms the subject of this last narrative had also been confined to the stable for upwards of eight days by an inflammatory swelling on the chest.

December 11*th*, 1826.—The animal was better, and he was put with some others to draw a waggon load of grain. After going about three or four miles, his hind limbs began suddenly to give way; and he dragged them after him: the waggoner perceived it, but ere he had time to unharness the horse, he fell. This accident happened within a few doors of me, and I was immediately called out.

He was an entire horse, in tolerable condition, six years old, and about sixteen hands high; and they told me that he belonged to M. Rivet, farmer, at Mervillier, in the district of Eure et Loir.

He was lying quietly on his right side. I should not have perceived any thing extraordinary had it not been for the quickness and hardness of the pulse. I tried to raise him; he did not refuse, but on the contrary, got on his fore legs and tried to rise; he struggled with his hind legs, and then fell down, as if tired. At length, after fruitless trials, I got assistants, and succeeded in placing him on his feet. His position was exceedingly singular; his fore legs were straddling, and far from the centre of gravity; the animal earnestly tried to balance himself, but if our support was withdrawn for an instant from his hind limbs, he vibrated from right to left like the pendulum of a clock. During these involuntary motions the head was depressed, the eyes fixed and haggard, the loins stiff and insensible, and the appearance of the animal sufficiently announced that he was labouring under some great disorder, and suffering very acute pain. In order to get him along, I was obliged to place four men, one at each hind extremity, and one at each flank; so that as the fore quarters moved forward two of the men pushed and lifted the hind legs forward, while the other two sustained the equilibrium; but in spite of all these precautions he fell several times. At length, after toiling for nearly an hour and a half, we got him into my infirmary.

I had him put on good litter, and left him alone for an hour before I examined him; nevertheless, I expected to find paralysis of the lumbar muscles. I observed the following symptoms, which confirmed me in my prognostic:—The horse was lying on his right side, covered with sweat; the respiration was

laborious, the pulse quick and wiry, the mouth hot, and the eyes red; he often attempted to rise; the thoracic and abdominal members were uselessly put in play, the region of the loins was inflexible, and there was scarcely any heat or sensibility in this part: the animal did not testify any pain when he was deeply pricked on the loins. After having rubbed him gently dry, I took from the saphena veins between four and five pounds of blood, I put a poultice of oatmeal made with vinegar on the loins, after having previously ordered them to be well rubbed; I afterwards gave some bottles of mucilaginous water, and several emollient clysters. An hour afterwards the patient passed several hard pellets of dung with the clysters, and made useless efforts to stale. On introducing my hand into the rectum, I felt the fulness of the bladder: I compressed it on every side, and a great quantity of a brick-coloured urine was voided. In the evening the pulse was still full; I amputated one joint of the tail, and left it bleeding for an hour, and gave drinks, clysters, and a poultice of oatmeal.

On the morning of the second day the horse was much quieter; the eyes were not so red, nor the pulse so wiry. He made several ineffectual efforts to rise. I again forced the urine to flow, but it was not so red as yesterday. I had him turned, and bled from the tail for half an hour. I administered four drachms of nux vomica. Poultices of oatmeal on the loins, and mucilaginous drinks and clysters. He had hitherto shewn no inclination for food, and it was not until evening that he took a little white water, and tried to eat.

This treatment was continued until the fifth day without the paralysis appearing to be relieved; as for the rest, the appetite was good, the pulse and respiration in their natural state, and the urine and dung were voided naturally. Besides continuing the former treatment, I determined sooner than usual to have recourse to acupuncturation; and accordingly I introduced twelve needles eighteen lines deep into the thickest part of the ilio-spinal (*longissimus dorsi*) muscle, and I suffered them to remain for eight hours. I continued the same operation and the other treatment for eight days.

On the tenth day after the appearance of the disease, I was astonished to see the animal get up about half an hour after he had been turned on his left side: he was very weak, but he moved his hind extremities with great difficulty. He did not lie down again until the next morning; he then slept profoundly, and some hours after rose again.

On the morning of the twelfth day he was lying down; but as soon as I approached he got up. I found his hind extremi-

ties not so weak; and made him take a little exercise in the yard. A few days afterwards he was so evidently better, that, notwithstanding the weakness of the loins, I regarded my patient as almost convalescent, and that only time and care were wanting to complete the cure. I therefore sent him home to his master, a distance of about four miles and a half, which he walked without resting. The following is the course which I advised them to pursue:—to make use of dry frictions on the loins several times a-day; to exercise him; now and then to give him a clyster; and by degrees to augment his rations. The animal continued every day to improve, and on the twenty-seventh day returned to his ordinary work. From that time to this he has had no return of paralysis.

What are the causes of this paralysis? The animals that were attacked by it presented only the very common condition of the continued use of too much food, and that often unwholesome. All three of them were good feeders, and had the ordinary rations of other horses; and, perhaps, between the proper feeding hours they had bad fodder or mouldy or rotten peas or vetches. Might not the irritation of the essential organs, those of digestion, have some sympathetic influence? The numerous communications of the great sympathetic nerve with those which are distributed through the paralysed muscles seem to authorize this supposition.

I should very much wish to be able to add to the foregoing remarks those which would result from a careful post-mortem examination. These confirmations are wanting, since all three animals were cured, although with a very striking difference in the duration of the disease. The first horse was not able to begin his work until after the seventy-ninth day; the second not until the sixty-first; and the third could go to his work on the twenty-seventh day. What was the reason of this? Ought it to be attributed to some difference in the degree of paralysis, or to a difference of treatment, and especially to acupuncturation, which ought to have been performed earlier in the first two cases? I shall limit myself to these reflections. Other facts will, perhaps, appear to diminish the doubts which have arisen with respect to these really important cases.

Journal de Med. Vet. et Comp.

ON THE DRACONCULE (*strongylus filaria aut veinulosus?*) OF LAMBS.

By the Baron de Reck.

You received last year a report from M. B. de Montelon, on the disease in sheep occasioned by the (worm) draconcule, so frequent in our lands. I have had, for the last fifteen years, very painful experience of this disease, which has attacked my flock six different times, and has carried off about fifteen hundred of the finest and strongest of my lambs.

My experience on this subject may give some interest to my communication, and especially as I believe that I have discovered a specific against this fatal malady.

The complaint, so far as I have had experience of it, attacks sheep only in their first year, and commences always with diarrhœa, which assumes a chronic form, and seems to single out the finest and best of the flock. Every year the malady is first developed in that portion of my flock which seems to be the most promising. A very few only of those who are attacked by this diarrhœa recovered; the others declined every day, losing their appetite, becoming thinner, and at length dying debilitated and exhausted. In some cases where there was little hope of cure, I ordered the lambs to be killed and opened, and found the lungs and the liver of a very pale colour, and eaten into, as were the stomach and intestines, by a very thin white worm, about an inch and a half or two inches long, and which has often been described. These worms were seen when the lambs were opened immediately after death; but if they were left several hours, no trace of the worms was discoverable, and the diseased aspect of the lungs and the liver alone remained. These organs were then covered with a white mucus, which I believe to be formed by the worms passing quickly into decomposition, because, when the worms appeared, the lungs and liver were dry, and no mucus was observed about them.

The causes of this disease appear to be (so far as my experience goes) in summer, high and dry pasturage; or in winter, the hay from the same situations. It is easy to prevent the inconvenience occasioned by the latter (hay from a dry and elevated soil), because trefoil, and the produce of low and grassy meadows, and particularly grains and roots, never give rise to the disease. In summer it is more difficult, because we have not always a sufficient quantity of pasturage, and change of pasturage seems to be the only preservative, and also a means of cure; although, if the

lambs are put into other and lower grounds, they are still exposed to the disease, for plants may grow on the most elevated spots of them which are injurious to sheep.

According to my observation, nothing is more likely to cause this diarrhœa than small red sorrel, which grows principally on high, sandy, and rich land: nevertheless, it is also found both on moist land and on dry soil; and every time that the disease appeared in my flock, I was persuaded that it was the feeding on this plant which gave my sheep the diarrhœa.

Until the present summer my opinion has been, that the diarrhœa becoming chronic, produces a relaxation of the internal organic system; and that this relaxation favours the developement of the worms, and that to so great a degree, as at length to destroy the sheep.

My opinion has a little changed this year. I had weaned at Saint Jean six hundred fine lambs, and fed them every morning, before conducting them to pasture, on oats, hay, and straw. During the day I gave them a rich pasture, and, as a change, an excellent field of trefoil, on which neither sorrel nor any other hurtful plant grew. I was then, as I thought, in perfect security this year; for I had not only made use of all the preservative means with which I was acquainted, but I had avoided all those circumstances connected with the keep of the animals which were believed to be the occasional cause of the disease.

I must now take occasion to mention, that it is the opinion of many, that the sand which the animals eat, and which covers the grass during hard rains, is sometimes a cause of the disease. This is erroneous. The sand which mingles with the silecious, clayey, and calcareous earths, cannot exercise any influence on the animal economy, on account of the small portion which is swallowed; the pellets of dung which are occasionally mixed with it are probably equally innocent. But, in all cases, these things are taken in such small quantities, that it is difficult to believe that they are hurtful to the animal frame: a much stronger reason is, that it is impossible they can produce worms; these are already there. It is probable that it is the bad effects of the powder of musty hay which has given rise to this idea: but the evil here is neither in the dust nor sand; it is in the hay spoiled and decomposed, yet afterwards dried, and which turns into powder after it is stacked, and which is very little improved by the powder being beaten out. This operation, by which the dust and sand are well separated from the hay, does it but little good, because the quantity of that which is injurious is only diminished; it is not entirely got rid of. If it was the sand on the grass which causes the disorder, it would, of

course, be much more violent in rainy seasons; while, on the contrary, experience proves that the malady rages most in the dryest years.

As to the pastures in which my lambs were fed, the clover and grass were this year so thick, that it was scarcely possible they could be covered with sand even by the hardest rains; nevertheless the disease made its appearance in the latter part of July, but with new symptoms. It was first marked by a cough, which I had never observed before. In the first lambs that died, and were opened, the liver and lungs were perfectly healthy, and we could find no worms: in those that afterwards died we found a great quantity in the stomach and intestines; and at last we found them in the lungs and liver, which had now the same diseased appearance I have before described.

The only remedy then known for this disease (better pasture) could not be given to the sheep, for the red and white clover, and the stubble field of wheat and rye, which I had provided, were of no more avail than the pastures which they then were in. They would not eat oats, and preferred fine straw to all other food. As they were but little thirsty in succulent pastures, they drank only a very small quantity of the water mixed with spirit of wine, which I knew had been efficacious in many cases: we gave them regularly a certain quantity of salt, and, as I had made use of bitter plants for their food without success, I was unwilling to try them again.

In the meantime the disease increased; diarrhœa shewed itself much later, and as the consequence of that disease of which before it had appeared to be the cause. By the 1st of September I had lost nearly two hundred lambs; and I already regarded as lost my six hundred lambs which had before been my pride and delight.

Meanwhile I considered the disease in a new light. I could no longer regard it as the consequence of diarrhœa. I began to perceive that the draconcule existed in sheep as the ascarides in children; and that certain kinds of food, not yet sufficiently known, nourished the animals less than they did the worms; that they weakened the former, while they so far increased the worms, that they compromised the health and even the life of the lambs.

I knew that spirit of turpentine was often used to destroy the tapeworm. It could not be absolutely hurtful to ruminants, since it was administered in various diseases: all vermin were destroyed by it, and the idea occurred to me to try it with my sick lambs.

I accordingly mixed one part of spirit of turpentine with three parts of rectified spirit. I selected six of the most miserable

looking lambs which appeared to have but a day or two to live, and administered to them in the morning, before they were driven to pasture, a spoonful of this mixture. I awaited the result with impatience. Towards the evening of the same day, the shepherd told me that these lambs, which had scarcely eaten any thing on the preceding day, and had with difficulty kept up with the flock, had not only eaten with great avidity, but were returned quite filled out.

Inspection of them confirmed what he advanced. These animals, before totally emaciated, were so full that I feared I had given them too much; but as they were well on the next day, I gave them another dose, and another on the following day.

Encouraged by this success, I administered my remedy to all the diseased lambs (which were about a hundred and twenty), and a few days afterwards I gave it to four hundred more, of which the flock was composed, for they were all far from being in a healthy state.

On all the lambs the effect of the medicine was to produce a very great appetite the first day, and the most emaciated were entirely re-established in a few days. At the end of two months all my remaining lambs were in good health; and during that time only four of them died, and those not absolutely from the disease itself, but probably from its consequences, because it had made fatal ravages on some of the vital parts. Thus, in future, I shall not hesitate to give my flock spirit of turpentine whenever they appear dull or do not eat well.

Since that time I have seen the sheep in a neighbouring farm attacked by the same disease, and in a deplorable state. The owner told me that he was resolved to slaughter all those that were sick before the usual time for fattening them, because he had no hope of curing them, and there was a great scarcity of fodder. I recommended him to try my remedy, which he did the next day, and it produced the same effects which it had with me.

My opinion of this disease now is, that the presence of the draconcules in the intestines of lambs, like that of ascarides in children, should be regarded as an usual and natural circumstance; but that their multiplication, the cause of which is not sufficiently known, ought to be regarded (*sit venia verbo*) as the disease of the infancy of sheep; that the cough and diarrhœa should not be considered as separate and occasional maladies, but as accompanying this; that loss of appetite, emaciation, and frequently death, are the inevitable consequences, and that spirit of turpentine is the specific remedy.

However evident the success of this medicine may have been with me, it is not certain that it will be always and everywhere

the same; but as, up to the present time, no other remedy for this fatal malady seems to be known, I do not think I ought to conceal it; and I leave it to your determination to publish my observations in your Annals, either entire, or to make extracts from them. Perhaps some of your readers may, unfortunately, be in a situation to require such a remedy, and it will give me great pleasure if it is as serviceable to them as it was to me. At any rate, a number of essays on one subject must lead to some good result.

Segefield, near Spandau.

The readers of these Annals, as well as the editors, are infinitely obliged to M. le Baron de Reck for this valuable communication.

I never knew this disease in any degree so violent and mortal. Nevertheless, there is scarcely a year passes in which it does not make its appearance in some of my lambs, characterized by cough and looseness; but it has always, until now, passed away without my suffering any loss. I think I may attribute this result to my always being in the habit of giving them clean and dry fodder in the fold, which they never refuse, though they are in the best pasture. This year it appeared about the middle of October, attended only by looseness; and the animals that had been lately driven some distance were those that were principally attacked. They were taken to the fold, and salt mixed with wormwood and tar given to them, after which they soon recovered, and not one died. I ascribe it to this disease, that, during the inoculation of my lambs with the matter of scab, which I perform every year at this season, I lost two or three in a hundred, while, before this, the loss seldom exceeded one in a hundred: nevertheless, I do not directly accuse this disease, since, through fear of weakening them, I did not give the strong purgative, which I had always been accustomed to administer to them on the first day of the eruptive fever. I never saw the disease very fatal but in 1820, at Franckenfelde, where the lambs were very much weakened; but only a small number of them died, because good food was given them in the fold.

I perfectly agree with M. Einsender, that it is wrong to consider the eating of sand as the cause of this disease, or of many others. My sheep eat an astonishing quantity of sand and earth with the potatoes, because these have been cultivated in ground which has been strongly and freshly dunged, and yet they are perfectly well. Many persons have remarked, that the disease often makes its appearance in pastures where, in the middle of summer, small sorrel grows in great quantities. It disappears immediately after the manure is laid on, and the sheep

love best to feed on ground which has been lately manured. Other shepherds accuse the heiracium pilosella (the mouse-eared hawkweed), which grows on poor soil with the sorrel, as the cause of the disease, but which no animal will touch except it is almost starved.

A vast number of things have been mentioned as causes of this disease; but the true one appears to me to be still hidden. This only is certain, that it is very readily produced in lambs which are accustomed to being well fed, whether in the stable or in the field, and which are suddenly put on scantier fare. An error which shepherds often fall into, is, of accustoming the animals to an abundance of food when young, which they cannot give them afterwards. When the disease is perceived in time, nourishing food and change of pasture are always successful. At Franckenfeldt, malt seems to have been administered with good effect.

But when the malady has made much progress, a remedy so efficacious as that which my friend has discovered is inestimable.

Edit. of the Annales de Logelin.

This appears to be little more than the diarrhœa and hoose (*query*, bronchitis), with which lambs are so frequently and fatally attacked, when exposed to cold or partial starvation soon after weaning. We cannot bring ourselves to believe that the draconcule had much or any thing to do with it, or existed any where, except in the imagination of the Baron. We can form no conception of worms capable of doing so much mischief, and which, ere the animal is cold, vanish into film..

The editor of the "Annales" is perfectly right as to the proper and generally successful treatment of this malady; but we insert the paper as the production of an intelligent as well as titled agriculturist; and because we are convinced that the virtue of the spirit of turpentine, in many of the diseases of cattle and sheep, is not sufficiently appreciated.—(Ed. Vet.)

THE VETERINARIAN, SEPTEMBER 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

We return, on the alternate month, to a subject in which we acknowledge that we feel much interest, "the intellectual and moral faculties of our patients." We have shewn that with regard to the foundations of intellectual power, viz. attention, memory, association, and imagination, the difference between the biped and his quadruped slave is in degree and not in kind. And now

how stands the account with regard to the result of these preparatives for the exercise of the reasoning principle? The impression is made on the mind—attention fixes it there—memory frequently recurs to it—imagination combines it rightly or erroneously with many another impression—judgment determines the value of it, and the conclusions which are to be drawn from it, and that, if not with logical precision, yet, with sufficient accuracy for every practical purpose.

We had once a sick dog lying within one of the iron gates of our hospital, and it was impossible to get in without rolling the poor fellow over, and, perhaps, seriously injuring him. A fine Newfoundland dog, who was a patient at the same time, came to the gate, and stood for a moment gazing on us, seemingly wondering why we did not come in as usual; and then, quickly comprehending the reason, he gently rolled his companion on one side, and, retreating a little from the passage, he seemed to say, Come in; there is room for you now.

A bitch, naturally ill-tempered, and that would not suffer a stranger to touch her, had a scirrhous enlargement on one of her teats. As she lay in the lap of her mistress we tried repeatedly to examine the tumour, in spite of many a desperate attempt on her part to bite us: but all at once something seemed to strike her mind; she whined, looked at us, wagged her tail, and sprung from the lap on the ground, but it was to crouch at our feet and to lay herself down, exposing, as it were, the tumour to our inspection. She submitted to a somewhat painful examination of it, to a far more painful operation afterward; and whenever she saw us, she testified her joy and her gratitude in the most expressive and endearing manner. We do not need a better illustration of a perfect train of reasoning than is here afforded.

The bull to which we alluded in the July number, afforded as perfect an one when he resolutely prevented the cows from wandering, and himself and them from correction.

The horse, who after a few trials is convinced of his inability to perform the task required of him, and refuses to exhaust himself in useless efforts, is another instance of the exercise of a sound judgment.

We will not refer to the tricks which are taught to various quadrupeds—these are unnatural, and almost disgusting things—

they break down a barrier which Providence has placed between us and the brutes. We like to study the animal in the situation in which nature placed him, or designed him to be placed; and to observe in their natural and useful exercise, all the elements of reason, ay, and all the motives and feelings worthy of a rational creature;—to observe not only attention and memory, and reflection and judgment, but a consciousness of truth and duty, affection, gratitude, disinterestedness, devotedness. We have a stronger power of attention than is bestowed upon them; a more comprehensive language, extending not merely to our animal wants, but to all our reflections and feelings: we have the ability to register our acquirements and impressions, and to derive our most important knowledge from the experience, and teachings, and traditions of others, and that in every age of the world; and, above all, in every age and in every clime, we have had deeply imprinted upon our minds the consciousness of the existence of a Supreme Being, and of our accountableness to him. These are the circumstances which have given us, or ought to have given us, our decided superiority, and have placed us at the head of the creation.

Dr. Abell, in one of his lectures on phrenology, relates a singular instance both of the generosity and reasoning powers of the Newfoundland dog. When this dog left his master's house, he was often assailed by a number of little noisy dogs in the street. He usually passed them with apparent unconcern, as if they were beneath his notice; but one little cur was particularly troublesome, and at length carried his impudence so far as to bite the Newfoundland dog in the leg. This was a degree of wanton insult beyond what he could patiently endure; and he instantly turned round, ran after the offender, and seized him by the skin of the back. In this way he carried him in his mouth to the quay, and holding him some time over the water, at length dropped him into it. He did not, however, seem to design that the culprit should be punished capitally; and he waited a little while, until the poor animal, who was unused to that element, was not only well ducked but near sinking, when he plunged in, and brought him out safe to land."

Dr. Hancock, in his excellent "Essay on Instinct," quotes this anecdote, and very appropriately adds, "It would be difficult to

conceive of any punishment more aptly contrived, or more completely in character: indeed, if it were fully analysed, an ample commentary might be written, to shew what a variety of comparisons and motives and generous feelings entered into the composition of this act."

A circumstance happened in our native county, the truth of which is undoubted. Two goats, grazing about the ramparts of the citadel at Plymouth, got down upon the narrow ledge of the rock; and one of them advancing before the other till it came to an angle, was enabled to return; but in its way back met its companion, which produced a most perplexing dilemma, as it was impossible for them to pass each other, or for either of them to turn. Many persons saw them without being able to render any assistance. After a considerable time, the one that was advancing and had not reached the angle was observed to kneel down with great caution, and crouch as close as he could lie; which was no sooner done than the other walked over him with great dexterity, and they both returned the way they came in perfect safety. We will not say that this displays any very superior degree of intellectual power, but it demonstrates the act of reasoning; it proves that brutes, in spite of all our prejudices, can reason, and come to a right conclusion too.

We will extract one more anecdote of the sagacity of the sheep-dog, the most intelligent of all the canine tribe; and that sagacity exerted in the discharge of the duties for which Nature intended him. It is given by the Ettrick shepherd, and it is an account of one of his own dogs:—" My dog Sirrah was, beyond all comparison, the best dog I ever saw. He was of a surly and unsocial temper, disdaining all flattery and refusing to be caressed; but his attention to my commands and interest will never again, perhaps, be equalled by any of the canine race. When I first saw him, a drover was leading him with a rope. He was both lean and hungry, and far from being a beautiful animal, for he was almost black, and had a grim face striped with dark brown. I thought I perceived a sort of sullen intelligence in his countenance, notwithstanding his dejected and forlorn appearance.

In his whole figure and his mien
A sober character was seen
Of mountains and of dreary moors;

and so I bought him. He was scarcely a year old; and knew so little of herding, that he had never turned a sheep in his life; but as soon as he discovered that it was his duty to do so, and that it obliged me, I can never forget with what anxiety and eagerness he learned his different evolutions; and when I once made him understand a direction, he never forgot or mistook it."

On one night seven hundred sheep that were under his care, frightened by something, scampered away in three different directions across the hills, in spite of all that he could do to keep them together. "Sirrah," said the shepherd, "they're a' awa'." It was too dark for the dog and his master to see each other; but Sirrah understood him, and set off after the fugitives. The night passed on, and Hogg and his assistant traversed every neighbouring hill in anxious but fruitless search for the lambs; but he could hear nothing of them nor of the dog, and he was returning to his master with the doleful intelligence that he had lost all his lambs. "On our way home, however," says he, "we discovered a lot of lambs at the bottom of a deep ravine, and Sirrah standing in front of them, looking round for some relief, but still true to his charge. The sun was then up; and when we first came in view we concluded that it was one of the divisions, which Sirrah had been unable to manage until he came to that commanding situation; but what was our astonishment when we discovered that not one lamb of the whole flock was wanting. How he got all the divisions collected in the dark is beyond my comprehension. The charge was left entirely to himself from midnight until the rising sun; but if all the shepherds in the forest had been there to have assisted him, they could not have effected it with greater propriety. All that I can say is, that I never felt so grateful to any creature under the sun as I did to my honest Sirrah that morning."

We pass on to another division of our subject, the moral qualities,—what? of brutes? ay, and strongly developed and beautifully displayed, and often putting the biped to shame. We begin with the social affections. But they are mere instincts! We care not for that. These instincts are the foundations of every virtue in the human being; and in the quadruped they are associated with many a good quality that cannot escape our regard and admiration.

The parental affection! Let it be instinct: what character is

so attractive as the wisely indulgent father — the devoted mother? Is it instinct only in the brute, and associated with many a virtue in the human being? It is instinct and virtue combined in both. Let us trace a little the workings of this instinct.

It is told of a brute in human shape—a disgrace to science and to the name of a physiologist—that when he was dissecting a bitch alive, he could only hush her cries by suffering her to lick her offspring; and then, in spite of his barbarity, she was quiet. Our friend, the Ettrick Shepherd, gives us an anecdote of the parental affection of the bitch. He says that "a butcher had such implicit dependence on the attention of his dog to his orders, that whenever he put a cot of sheep before her, he took a pride in leaving them entirely to her, and either remained to take a glass with the farmer of whom he made the purchase, or took another road, to look after bargains or other business. But one time he chanced to commit a drove to her charge without attending to her condition as he ought to have done. His farm was five miles away over the wild hills, and there was no regularly defined path to it. On coming home late in the evening, he was astonished to hear that his faithful animal had not made her appearance with the flock. He and his son immediately prepared to set out by different paths in search of her; but on their going out into the street, there she was, coming with the drove, and no one missing; but she was carrying a young pup in her mouth. She had been taken in travail on those hills; and how the poor beast had contrived to manage the drove in her state of suffering, is beyond human calculation, for her road lay through sheep the whole way. Her master's heart smote him when he saw what she had suffered and effected; yet she was nothing daunted, and having deposited her young one in a place of safety, she again set out full speed to the hills, and brought another and another, till she had removed the whole litter one by one; but the last one was dead.

Another person had more upon his conscience; for he, too, had not sufficiently regarded the situation of his bitch, and he took her nearly twenty miles, and she whelped at the greatest distance from home; and she, also, brought home her offspring one by one; but they were all dead, and when she arrived with the last, she had just strength enough remaining to crawl to her bed, and she looked wistfully in her master's face, and died.

We have heard of a cat whose young ones were destroyed, and who wandered pining about until she discovered the place in which they were buried; and she scratched them up, and brought them one by one and laid them at her master's feet, as if to reproach him for his cruelty, and then was quieter; but it was long ere she regained her former familiarity.

We might refer to our biped patient, the common hen, the most cowardly creature at other times, exhibiting the greatest degree of courage in defence of her young, and braving every danger with a perfect disregard of her own safety. What sportsman has not seen the common partridge actually strike at the pointer when it has rushed suddenly into the midst of a covey; and the running or fluttering, as with broken wing, close to the very nose of the dog, is an every-day occurrence, indicative of parental affection and of instinct.

The sheep is not a very intellectual animal: what kind of a mother does she make? Listen to the bleatings with which she is inquiring how it fares with the young one, grazing in a somewhat distant part of the field; the eager tone with which she calls it to that which was its earliest food; the courage with which she defends it even from her own dog. The following anecdotes will shew us how a stupid sheep can feel. Here we quote again from the Ettrick shepherd:—"We had one very hard winter, so that our sheep grew lean in the spring, and the thwarter-ill came among them, and carried off a number. Often have I seen these poor victims when fallen down to rise no more, even when unable to lift their heads from the ground, holding up the leg to invite the starving lamb to the miserable pittance that the udder could still supply. I had never seen aught more painfully affecting. It is well known that it is a custom with shepherds when a lamb dies, if the mother have sufficiency of milk, to bring her in and put another lamb to her: this is done by putting the skin of the dead lamb upon the living one. The ewe immediately acknowledges the relationship; and after the skin has warmed on it, so as to give it something of the smell of her own progeny, and it has sucked her two or three times, she accepts and nourishes it as her own ever after. Whether it is from joy at this apparent reanimation of her young one, or a little doubt remaining on her mind that she would fain dispel, I cannot decide; but for a number of days she shews far more

fondness, more bleating and caressing over this one, than she did formerly over the one that was really her own.

"But this is not what I wanted to explain; it was that the new lamb must be put to them at home, for they will only take to it in a dark confined place. But I never need to drive a sheep home by force, or in any other way than the following. I invariably found the ewe standing hanging her head over her dead lamb, and, having a piece of twine with me for the purpose, I tied that to the lamb's neck or foot, and, trailing it along, the ewe followed me into any house or fold to which I chose to lead her. Any one of them would have followed me in that way for miles, with her nose close to the lamb, which she never quitted for a moment, except to chase the dog, which she would not suffer to walk near me. I often, out of curiosity, led them by this means to the side of the kitchen fire, and in the midst of servants and dogs; but the more that dangers multiplied around the ewe, she clung the closer to her dead offspring, and thought of nothing but protecting it.

"The same year there was a severe blast of snow came on by night, about the latter end of April, which destroyed several scores of our lambs; and as we had not enow of twins and odd lambs for the mothers that had lost theirs, we selected the best ewes, and put lambs to them. I requested of my master to spare me a lamb for a hawked ewe, which was standing over a dead lamb, about four miles from the house. He would not do it, but bid me let her stand over the lamb for a day or two; for, perhaps, a twin would be forthcoming. I did so, and truly she did stand to her charge. I visited her every morning and evening, and for the first eight days never caught her above two or three yards from the lamb. She eyed me long ere I came near her, and kept stamping with her foot to fright away the dog; he got a regular chase twice a-day as he passed by: but, however excited and fierce a ewe may be, she never offers any resistance to mankind, being perfectly and meekly passive to them.

"The weather grew fine and warm, and the dead lamb soon decayed, which the body of a dead lamb does particularly soon; but still this affectionate and desolate creature kept hanging over the poor remains with an affection that seemed to be nourished by hopelessness. It often drew the tears from my eyes to see her hanging with such fondness over a few bones mixed with

a small portion of wool. For the first fortnight she never quitted the spot, and for another week she visited it every morning and evening, uttering a few kindly and heart-piercing bleats each time, till, at length, every remnant of her offspring vanished, mixing with the soil." We should call this virtue in the human being: it would excite our mingled love and admiration. What shall we say about it in the sheep?—why, that we do not know half of the good qualities of our patients; and the more we know of them, we shall love our profession, and be reconciled to some of the rubs we meet with in the world, on account of the supposed inferiority of our patients, and I am afraid, hitherto, but not to last for ever, our actual inferiority.

Of the proofs of filial affection we have not so much to say. The period of infancy rapidly passes, and there is but little time for the young one, with few of his faculties developed, to acquire or to display any intense affection; but for obedience, passive obedience, except where instinct comes in the way (as when a poor hen is cruelly charged with the care of a brood of ducks), the quadruped or feathered biped is a pattern to the child. It is wonderful how quickly they obey the slightest signal from the parent. One cluck of the hen will summon all her chickens about her; one bleat of the ewe brings the lamb to her side. Among wild beasts, natural history contains many instances of the young fighting with desperation in defence of their parents. But these instincts, parental and filial, it is said, cease when the immediate objects for which they were given cease. The parent drives the young one from the nest, and the young one abandons the society of the parent. But does this take place to a much greater degree than among us? It is only where the young ones are fed by the care and diligence of the parent, that they are driven from the nest or from the lair; and what parent, who is compelled to maintain his child by manual labour, would suffer a full grown healthy son to prey upon him and impoverish him? It is a part of the system of nature that the parent should provide and love his offspring during infancy and youth; but the duty of the parent ceases when the young man can shift for himself—not, indeed, the regard and affection—nor is that certain with respect to gregarious animals. They continue to be members of the same colony, and for aught we know (and with some of

them we can see that it is so), are linked together by no common ties. There is not the difference in the laws of human and of brute society which at first glance appears.

Friendship!—is there a surer test of nobleness of character than sincerity and permanency of friendship? The brute is capable of it to an intense degree. We do not see many instances of it. Do we see many in the human being? He is a happy man who has met with *one friend* in the course of a long existence. These friendships, however, do exist. We see it to a great degree between horses that inhabit the same stable, or draw together—we see it more particularly in the dog; and we have in our recollection many instances, in which, when death has taken from his canine companion the associate of many a year, the survivor has not long remained. We have known many a dog die as palpably broken-hearted as the truest and fondest friend or lover has done. These friendships are sometimes incongruous—so are the friendships of man; the opposites in temper and pursuits associate and love each other, and now and then the very opposition of character constitutes the bond of friendship.

O'Kelly's Duncannon formed an intense friendship with a sheep. It would lift it into the manger to share its fodder, and would suffer no one to offer it the least molestation.

Chillaby, the mad Arabian, whom only one groom dared to approach, had also his peculiar attachment for a lamb; and the little protegée used to employ himself during many an hour in butting away the flies from his nobler friend.

The Darley Arabian formed a friendship for a cat, which sat upon his back, and nestled as closely to him as she could; and when he died, she pined away, and speedily died too.

Mr. Montague, in his Ornithological Dictionary, speaks of the singular attachment which subsisted between a goose and a pointer. The dog had destroyed the gander, and was punished severely for his crime, and had the dead gander tied about his neck. The solitary goose was exceedingly distressed for the loss of her partner, and probably was attracted to the dog's kennel by the sight of her dead mate; and after a little while, a friendship grew up between them, and they lived under the same roof, and fed out of the same trough, and kept each other warm in the same

straw bed; and when the dog was taken to the field, the unharmonious lamentations of the goose for the absence of her friend were incessant.

A raven was kept some years ago at the Red Lion, at Hungerford. He had been brought up with a dog, and the affection between them was mutual. After awhile, Ralph's poor dog broke his leg; and during the time he was confined, the raven waited upon him, and carried him his food, and scarcely ever left him. One night, by accident, the stable door had been shut, and Ralph had been deprived of the company of his friend all night; but the ostler found in the morning the door so pecked away, that in another hour Ralph would have made his own entrance.

Those associations which do not amount to friendship—those intercommunications of good offices in which it has been said that much of the duty, and, we are sure, the greater part of the pleasure of life consists, are they confined to the lords of the creation? Far from it. We will not go back to a state of nature, when mutual wants and natural weaknesses bind the little societies or herds together; we have something of this principle of mutual support in the domesticated state of our quadruped servants. If a dog enters a park among cattle or deer, there is a general clustering of the herd, a common advance against the intruder. A strange dog approaching a flock of sheep is opposed by many a threatening front. We have never seen a flock of stupid geese feeding on a common, without observing one or more attentive sentinels; and, if we approached, being saluted by many a mingled hiss.

But beside this common feeling of union, there is quite as much individual passing attachment as we see in the society of nobler beings. There is a constant exchange of sentiment and kindness, we may call it, between the fellow-labourers. At every pause in the work you see it; and when their task is accomplished, you will see the companions at work, still associating together. We have never passed a field in which many horses are turned out, without stopping to look upon the one, or two, or three pairs, who are nibbling each other with every expression of mutual liking and pleasure: a couple of cows will stand hour after hour licking each other. These are moral qualities, are

they not? They belong to a minor class, but they are valuable: we find them so, and woe betide the surly fellow who is insensible to their necessity and their power.

But we are transgressing the limits of our leading article. We shall take higher, far higher ground when we resume our subject.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Remarks on the Condition of Hunters; the Choice of Horses; and their Management; in a series of familiar Letters, originally published in the Sporting Magazine. By Nimrod.

Riding-masters, racers, grooms, and foxhunters, have, each in their turn, made such free and unwarrantable incursions into the territory of the veterinarian, that, were we at all disposed to a vindictive turn of mind, we might jump at such an opportunity as the present work affords to shew these gentry that, however *knowing* they may in their inward hearts conceive themselves to be as *practical* horsemen or grooms, they are, all of them, strangely "abroad," when they come to "throw off" in *our* "country." *Ne sutor ultra crepidam* is a motto it behoves us all to bear in mind through life; otherwise, though we may do a great deal of good in *our own way*, we shall, by intermeddling, do a monstrous deal of harm in the province of some of our neighbours. So indisposed, however, are we to take any such paltry advantage—nay, so desirous are we that each party should know and keep his special boundary, and not poach upon the other's manor—that, rather than raise up any differences between them, it shall be our duty, on the present occasion, to shew how reciprocally serviceable their knowledge may prove to one another, and how general, useful, and valuable, the two may become, when judiciously and scientifically combined.

In former times, professors of equitation ranked among the most potent arbiters of every matter and thing concerning horses: in later times, grooms and sportsmen got the better of them; and their decision on like matters (like that of an appeal to the Jockey Club) became final. Since, however, veterinary science has darted its beams through the clouded atmosphere, by which both these sects have been at all times surrounded, horse-concerns have undergone quite a revolution; or rather (to speak more to the point) a revolution has commenced, which is now, with more or less rapidity, in every quarter, though more in some than in others, progressing; and which, in the end, most certainly must put an end to the sovereignty of grooms and jockeys, as it has already almost extinguished the once paramount power of

breakers and riding-masters. The day must and will arrive when every one of these *distingués* will find his labours circumscribed within his own proper sphere—when (to repeat the old proverb) every shoemaker will be confined to his own last.

If there were any one species of literary composition that could have the effect (now that the *veterinary*, as well as other schoolmasters, is abroad) of doing our profession harm in any way, it would be such an one as is here presented to our readers; a work coming from the pen of a man who has written not only more learnedly but much more takingly—more like a scholar, and at the same time more like a sportsman, and with more pleasing fireside anecdote, than any one who has gone before him. And for this reason is the production of such a writer calculated to take this effect—because sportsmen, grooms, and others into whose hands his book may fall, finding that the author really is, and in an eminent degree, acquainted with *their* occupations, will also give him implicit credit for knowing ours. No person that admires the warrior and statesmen-like brilliances shining forth in the character of Napoleon, but deplores that he ever suffered his ambition to get the master of his judgment, and embark him in such an undertaking as a Russian war: on the same ground it is, admiring as we do the sporting character of our friend Nimrod, that we have cause to lament that he ever allowed himself to be led away into the province of veterinary science—a country to him unexplored, undefined, undescribed. We lament it, for *his* sake: for our own we might (were we of a malevolent disposition) feel inclined to rejoice at it; inasmuch as his *medical* reasoning, clothed even as it is in eloquent language, and embroidered with amusing anecdote, still is of too superficial and flimsy a character to stay for a moment the serious attention of one medical professor. To a degree, Nimrod would seem to have imbibed a notion, far too prevalent now-a-days, that, because a horse is a horse, and not a man—is a beast or brute, and not a human being—ergo, that not only has any one a sort of right to administer to him when sick or lame, but that it follows that his disorders (being those of a mere *animal*) must come within the capacity of any man of common sense who chooses to apply himself to a little external observation. But, if such knowledge is to be obtained in this prompt and facile manner, of what use is it for us to spend our days in anatomical pursuits—our nights in physiological study? We might as well commence our learning upon a horse's back, riding after a pack of fox-hounds. It would be rather a more pleasurable pursuit, we hold little doubt, to many veterinary pupils. But the truth of the matter is, that just so much *science* as is necessary to constitute a human surgeon or physician, the same *is required* to properly qualify a man to enter upon the practice of animal medicine; and though but few are fortunate enough to obtain this,

that is no argument that it is not required; only a disgrace to our teachers that it is not conveyed. Few institutions commenced under better auspices than the Veterinary College of London did: none has so thrown away its advantages, and relinquished the benefits of the science and of its members, for the sake of filling the pockets of its conductors. Had the College done its duty, we should not now have to deplore the degraded and disreputable state of the profession; nor need Nimrods to compose works for us on veterinary medicine.

In thus freely expressing our disapprobation of any incursions made upon our own special province, and our dislike to any interference on the part of non-professional men, we can assure our friend Nimrod that we intend nothing that we have said personally for him. His work, as a *sporting* work, we always have admired, and always shall; we only regret that he did not limit his labours to the sporting department—or rather, that he has "dabbled in troubled waters." We can in sincerity and truth declare to him that our profession, even to ourselves, comes but too often in the shape of some unsolvable mystery; and if to us (skilled as we are, or ought to be, in anatomy, physiology, and pathology) it prove so, what must it appear to those who can call in no such potent aids, but have simply to reason from only as much as appears evident upon the surface?

Thus friendlily disposed towards our author, and feeling much interest in many parts of the work he has laid before us, we shall, in our next Number, offer some few passing comments on such of his "observations" as bear relation to veterinary science.

Sporting Department.

York Meeting, Aug. 7.

Produce Stakes of 100 sovs.: won easily by Lord Sligo's Daxon, beating Mr Gascoigne's Cotton, Mr. Fox's Wallflower, and Mr. Gardner's Blacklock.

His Majesty's Plate of 100 guineas: won by half a neck by Lord Cleveland's Stotforth, beating Mr. Scott's Rodolph and three others.

August 8.

One-third of the great subscription of 25 sovs.: Mr. Walker's Consul beat Mr. Houldsworth's Contest by half a head.

August 9.

The Great Produce Stakes of 100 sovs. each: Mr. Watt's Nicotris beat Lord Kelburne's Retriever and Mr. Petre's Lady Barbara—a good race—2 to 1 on Retainer, and 6 to 1 against the winner. This made a great difference in the betting, and first brought Nicotris into notice.

One-third of the Great Subscription: Lord Kelburne's Retriever beat the Duke of Leeds's Jenny Mills and Mr. Houldsworth's Fortitude—won by half a length.

Silver Tureen and Sweepstakes: Lord Cleveland's Maria beat, easily, Mr. Walker's Voluna and Mr. Houldsworth's Clara.

August 10.

His Majesty's Plate of 100 guineas: won easily by Lord Cleveland's Maria, beating Mr. Attwood's Penthesalia, and Mr. Fox's Getania.

Sweepstakes of 30 sovs. for 3 year-olds: won with difficulty by Mr. Howlett's filly, by Figaro, beating Mr. Dodsworth's Tartar by half a neck, who was only a head before Mr. Walker's Conrad, Trident being only a neck behind, and Westport and Wallflower well up.

The Hornby Stakes of 100 sovs.: won easily by the Duke of Leeds's Lady Marcia, beating Mr. Houldsworth's Fidelity easily.

Renewed Subscription of 25 sovs.: won easily by Lord Kelburne's Retriever, beating Mr. Houldsworth's Contest, and Mr. Walker's Voluna.

ODDS ON THE GREAT ST. LEGER.

	July 27th	Aug. 3d	7th	10th	17th	24th	27th
Lord Kelburne's Retriever ..	8 to 1	7 to 1	7 to 1	17 to 1	11 to 1	9 to 1	8 to 1
Mr. Gully's Margrave	9 to 1	9 to 1	9 to 1	9 to 1	11 to 1	9 to 1	9 to 1
Mr. Vansittart's Perion	10 to 1	9 to 1	10 to 1	8 to 1	12 to 1	30 to 1	20 to 1
Mr. Fox's Julius	11 to 1	13 to 1	15 to 1	13 to 1	10 to 1	10 to 1	12 to 1
Mr. Richardson's Fang.....	12 to 1	9 to 1	10 to 1	12 to 1	10 to 1	10 to 1	12 to 1
Mr. Beardsworth's Ludlow ..	12 to 1	14 to 1	——	12 to 1	12 to 1	12 to 1	13 to 1
Lord Cleveland's Trustee....	12 to 1	11 to 1	12 to 1	11 to 1	14 to 1	12 to 1	13 to 1
Mr. Ridsdale's Burgomaster...	15 to 1	15 to 1	——	20 to 1	——	25 to 1	14 to 1
Sir R. Bulkeley's Birdcatcher	20 to 1	20 to 1	——	17 to 1	20 to 1	16 to 1	14 to 1
Mr. Walker's Conrad.....	25 to 1	30 to 1	20 to 1	20 to 1	——	——	——
———— Francesca	30 to 1	25 to 1	——	40 to 1	——	——	——
Mr. Watts' Nicotus	——	——	——	12 to 1	7 to 1	5½ to 1	6½ to 1
Lord Exeter's Beiram	——	——	——	——	13 to 1	——	30 to 1
Lord Sligo's Daxon	——	——	33 to 1	——	——	33 to 1	25 to 1
Mr. Skipsey's Physician	——	——	——	——	——	33 to 1	——
Mr. Powlett's Filly, by Figaro	——	——	——	——	——	40 to 1	40 to 1

Goodwood, August 14th to the 17th.

The Drawing Room Stakes were won by Lord Exeter's Beiram, beating cleverly by a length Lord Tavistock's Posthumus and others.

The Sweepstakes of 50 Guineas was won by Lord Chesterfield's Olga, beating the Duke of Richmond's Hyder after one dead heat, and the second a very severe race.

The Goodwood Stakes were won by Sir Mark Wood's Lucetta, beating Lord J. Fitzroy's Changeling by a head, after a very severe race, and Shark, who had a very fair chance for the race, breaking his leg half a distance from home.

The Gold Cup was won with difficulty by Lord Chesterfield's Priam, beating Beiram by half a length, Lady Fly being third, Jocko fourth, St. Giles's fifth, and Rowton, who was very lame, not starting. The following had been the odds:—

	July 27th.	August 3d.	15th at starting.
Lord Chesterfield's Priam, 5 years	6 to 4	2 to 1	6 to 5
Mr. Ridsdale's St. Giles's, 3 years	3½ to 1	3½ to 1	2½ to 1
Mr. Chiffney's Rowton	6 to 1	5 to 1	—
Mr. Gully's Lady Fly, 3 years.....	8 to 1	7 to 1	8 to 1
Mr. Sadler's Jocko, aged	—	—	12 to 1
Lord Exeter's Beiram, 3 years	15 to 1	10 to 1	8 to 1

A Sweepstakes of 50 Sovereigns was won easily by Lord Tavistock's Posthumus, beating Dryad and the Partisan Colt; and

His Majesty's Plate of 100 Guineas was won by a length, by Mr. Sadler's Jocko, beating Lucetta, Sarpedon, and Whiskey.

Egham Races, August 28.

The Gold Cup was won by Col. Salway's Mazeppa, beating Mr. Henry's Margaret, by 100 yards:—a miserable race.

Sweepstakes of 20 sovs. each: won by Mr. Gardner's Cinderella, beating Mr. Ley's Partiality: after a severe run Partiality was winning easily, when 10 yards from home she stopped short as if shot, and Cinderella won by a head in the last stride.

The Runnymede Stakes: won by Lord Uxbridge's Hermit, after three good heats, beating Mr. Gardner's Ida, and Lord Exeter's Partizan.

TO CORRESPONDENTS.

Mr. Vines on the Absorbents, &c. in our next.

Amicus.—Never.

THE

VETERINARIAN.

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MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XXI.

The Thorax—the Ribs, Sternum, and Intercostal Muscles—the proper form of the Chest.

THE *Thorax*, or *Chest*, into which we have traced the windpipe, is of a conoid form, with its apex presenting anteriorly, its base posteriorly, and its sides considerably flattened; or, considering it in its horizontal position, it is of a somewhat oval figure, with its extremities truncated. We may regard the spine as its roof; the sternum as its floor; the ribs as its sides; the trachea, œsophagus, and great bloodvessels, occupying the space between the first pair of ribs, as its anterior extremity, and the diaphragm as its posterior boundary. It is supported by the fore-legs; and it incloses the heart and the lungs, the origin of the arterial and the termination of the venous trunks, and of the collected vessels of the absorbents, the windpipe penetrating into it, and the œsophagus traversing its whole extent.

The Ribs a Protection for the Contents of the Chest.—The cavity, whose contents are thus important, ought to be securely defended. The slightest glance at the mechanism before you will afford sufficient proof of the care which has been taken to protect these vital organs from injury. Regard the roof of the cavity; it is not composed of one unyielding prolongation of bone, which might indeed have been made strong enough to resist both pressure and violence from above, but which then would have subjected the trunk, and its contents, to a thousand rude and dangerous shocks, even in the common action, but more particularly the rapid motion of the animal; and which would have exposed these complicated and delicately-formed organs to disarrangement or rupture: but there is a curiously-contrived series of bones, knit together by dense cartilaginous substance, and by strong ligaments, and forming so many joints, each indeed possessed but of little individual motion, but the whole united, form-

ing a column of such exquisitely-contrived flexibility and strength, that, while concussion is avoided, no external violence or weight can injure that which it protects. This will occupy our attention more particularly when the osseous system comes before us.

Means by which Concussion is obviated.—Then, as supported by and connected with the anterior extremities, observe the contrivances there adopted to prevent injurious concussion. There is no inflexible bony union between the shoulders and the chest; but while the spine is formed to neutralize much of the concussion that might be received—while the elastic connexions between the vertebræ of the back, alternately affording a yielding resistance to the shock, and regaining their natural situation when the external force is removed, go far by this playful motion to render harmless the rudest motion—there is a provision made by the attachment of the shoulder-blade to the chest, calculated to prevent the possibility of any rude concussion reaching the thorax.

The muscular Connexion of the Shoulder.—Observe the immense strength, and tendinous elastic composition, of this saw-shaped muscle, the *serratus major,* spreading over the internal surface of the shoulder-blade and a portion of the chest. A spring of easier play could not have been attached to the carriage of any invalid. This is a carriage hung by springs between the scapulæ, and a delightful one it is for easy travelling; while there is combined with it, and the union is not a little difficult, strength enough to resist the jolting of the roughest road and the most rapid pace. This is not the place to speak of the numerous contrivances in the limb below, in order to prevent concussion, whether the obliquity and angular position of some of the bones; or the interposition of numerous small bones, each thickly covered by elastic cartilages, where the larger bones would otherwise be vertically opposed to each other; or the admirable contrivance of other supplementary and partially detached and moveable bones, united to the bony column by elastic ligaments, and on which a portion of the weight can occasionally be thrown, and no concussion felt:—these will pleasingly and usefully occupy us when we arrive at the locomotive system. Our attention must at present be confined to the chest and its immediate connexions. Laterally there is sufficient defence against all common injury by the expansion of the shoulder over the chest from between the first and second to the seventh rib; and behind and below that there is the bony structure of the ribs, of no little strength; and their arched form, although a flattened arch; and the yielding motion at the base of each rib, resulting from its jointed connexion with the spine above, and its cartilaginous union with the sternum below.

The Thorax adapts itself to the changing bulk of its contents.—A still more important consideration with regard to the parietes of the thorax is the manner in which they can adapt themselves to the changing bulk of the contents of the cavity. The capacity of the chest is little affected by the alternate contraction and dilatation of the heart, for when its ventricles are collapsed its auricles are distended, and when its auricles are compressed its ventricles expand; but with regard to the lungs, it is a very different affair. In their state of collapse and expansion, they are of very different size; they vary in comparative bulk one-sixth part or more; and in either state it is necessary for the proper discharge of the function of respiration that the parietes of the chest should be in contact with them.

Number of the Ribs.—Let us consider this a little. The ribs are eighteen in number on either side. Nine of them are perfect, and commonly called the *true*—I would rather say *sternal*, ribs, extending from the spine to the sternum; the remaining nine are *posterior* and shorter, and are only indirectly connected with the sternum. The number is sometimes variable. Not unfrequently there are nineteen on each side, but the additional ones are always *posterior* ribs. In this thorax you can plainly count twenty-one on each side, but three of these are supplementary. There is a double curvature in the spine, and, occupying and supporting each of the arches, are three additional, perfect, but not very stout ribs, placed within the natural ones, which retain their usual situation. It is one of the most beautiful illustrations I have ever seen of that presiding power, that *vis medicatrix naturæ*, which is ever employed in preserving the healthy structure and function of the frame, or resorting to the most admirable contrivances to repair injury, or counteract disease. These things have hitherto been strangely overlooked among us.

How connected with the Spine.—These ribs are united to the corresponding vertebræ or bones of the spine, so as to form perfect joints, or rather each rib forms two joints. The head of the rib is received between the vertebræ or bone of the spine, above and below, so that it shall always present two articulating surfaces, one opposed to each of the vertebræ, and both forming one joint, with a perfect capsular ligament, and admitting of a rotatory motion. The head of the rib seems to be received, as it were, into the cartilago-ligamentous substance between the vertebræ.

The Second Joint.—A little below is a turberosity which articulates with the inferior surface of the transverse process of the lower of the two vertebræ with which the head is united. This surface varies in the different vertebræ. In the anterior ones it

lies towards the posterior edge—in the central ones it is more centrically situated,—in the posterior ones it lies towards the anterior edge. This joint has also a separate capsular ligament, and it admits of a rotatory motion.

Union with the Cartilage.—Before the ribs reach the sternum below, they terminate in a cartilaginous prolongation, or the lower part of the rib may be said to be cartilaginous. There is also between the bone and the cartilage a joint, not a very polished one, but with a true capsular ligament, and admitting of some motion; and when the sternal rib unites with the sternum there is a fourth joint, the socket is perfect and deep, and the capsular ligament is complete. The cartilages of the posterior ribs are united to the bony portion by a kind of joint, but, not reaching so low as the sternum, are attached to each other below; the extremity of one lying upon the body of that which is immediately before it, bound down upon it by cellular substance approaching to the nature of ligament, yet having some separate motion; and all of them connected indirectly with the sternum, by means of the last sternal rib.

Description of the Ribs.—You will perceive that the first pair of ribs are shorter, thicker, and stronger than any of the others. The cartilage is very short, and in the same direction with the bone. Their office is to support the pressure of the head and neck, and which would be overwhelmingly great, considering the length of the lever from which the head is appended, were not a very great portion of it borne by the proper ligament of the neck above. They consequently have little motion: they are mere fixed points on which the others act. The second rib also is long and straight, and discharges somewhat of the same function, and has little motion. The cartilages from the others take a sudden direction anteriorly, in order to be inserted into the sternum, and form an angle with the rib more or less acute, and most so anteriorly.

The Differences.—The ox has but thirteen ribs on each side, eight of them sternal, and five posterior. The dog also has thirteen, nine of them sternal. The swine has fourteen, and compared with those of any of our other patients, thin and weak. The ribs of the ox are larger and thicker, and more rounded than those of the horse; and the articulation between the bone and the cartilage of the rib is imperfect, and devoid of synovial membrane.

The Sternum.

The sternum, or breast bone, is more complicated than it at first appears to be. It constitutes the floor of the thorax;—a long,

flat, spongy bone, fixed between the sternal ribs, articulating with their cartilages, and serving as a point of support for them. It is composed of from seven to nine pieces, united together by cartilage. This cartilage is not exchanged for bone even in extreme old age, although many spots of ossific matter are then found in it. I have nothing to say of it which bears on physiology or pathology; I will therefore content myself with pointing out to you the singular cartilaginous appendix anteriorly, in the form of the rounded part of the keel of a ship, and which may always be felt, and generally seen in the living horse, and is known by the name of *the point of the breast.* It is occasionally injured by blows, or by the pressure of the collar. I have known it completely chipped or broken off from the sternum; and much oftener a kind of tumour has formed on the point of it, which has occasionally ulcerated, and proved exceedingly difficult to heal.

The posterior appendix to the sternum is also cartilaginous. We call it *the ensiform cartilage,* although it does not bear much resemblance to a sword. It is flat, flexible, yet strong, and serves as the commencement of the floor, or support of the abdomen, and also as giving origin to some of the abdominal muscles; and a more convenient and better one than they could have had from the body of the sternum.

The Sternum in other Animals.—The *ox* has no point of the breast or *trachealian apophysis.* The anterior extremity of these bones scarcely protrudes beyond the first rib, but it is a great deal more moveable than in the horse. The posterior apophysis, or appendix, is likewise narrower than in the horse, but longer and looser. The interposed cartilage between the bones of the sternum become early ossified in the ox.

In the *dog* the anterior appendix is curved as in the horse, but considerably shorter. In the *hog* it is shorter than in the dog, stronger, soon becoming ossified, and not curved. In the *stag* this ensiform process of the sternum is far more prominent than it is in the horse.

The sternum in birds is a bone of singular development. It has a process or spine below of considerable depth for the attachment of the muscles of the breast, and in some of them it is even hollowed out for the reception of a part of the trachea. The wild swan, whole skeleton is now before you, is an illustration of this.

The Intercostal Muscles.

The borders of the ribs are anteriorly concave, thin, and sharp; posteriorly rounded; and presenting underneath a longitudinal

depression or channel, in which run both bloodvessels and nerves. The space between them is filled up by muscular substance firmly attached to the borders of the ribs. There are said to be two layers of muscles, the fibres of which cross each other in the direction of an X, the direction of those of the outer layer being oblique anteriorly-posteriorly, and of the inner layer also oblique but posteriorly-anteriorly.

Reason of their Oblique Direction.—There is a manifest reason for this: if the fibres ran straight across from rib to rib, they might act powerfully, but their action would be exceedingly limited. A short muscle can contract but a very little way, and only a slight change of form or dimension can be produced. By running diagonally from rib to rib these muscles are double the length that they could otherwise have been; and the extent of the contraction is doubled, and thus the ribs are brought closer to each other than they could otherwise have been. It is a general rule with regard to muscular action, that the power of the muscle depends on its bulk, and the extent of its action on length.

The Rotatory Motion of the Ribs enlarging the Thorax.—Well then, gentlemen, I will suppose that from the influence of the intercostal nerves, these muscles contract, and the ribs are brought closer to each other; and as the two first ribs are, in a manner, the fixed point, the bony walls of the chest are brought forward while they are shortened. The effect of this, you would say, would be to contract the cavity of the chest. Not so. The motion of the rib, as depending on the two joints by which it is connected with the spine, is purely a rotatory one. The muscles are inserted, not only into the edges of the ribs, but to a little distance from the edges; and the effect of the action of the muscles is to rotate the ribs more than to approximate them, and in thus rotating them, to throw them outward, and thus, in fact, to expand and not to contract the cavity of the chest. In the action of the intercostals, we are probably not to consider it a simple contraction of the centre of muscle, equally affecting the rib before and the rib behind, but we are to regard the posterior edge of the rib as the fixed point, the anterior of the next rib as the moveable one, and thus, while they are approximated to each other by the contraction of the muscle, they are more rotated and drawn outward, and the cavity of the chest enlarged. This is particularly the case with the posterior ribs, which are not tied down to the sternum, and are much more loosely attached to each other, and therefore have greater freedom of motion, and are rotated to a greater extent, and thrown more outward. More especially is this the case with the two last ribs, which have only one

jointed attachment to the spine, there being no tubercle by which they are tied down to the transverse process; and, their attachment being looser to the cartilages of the ribs before them, their action is freest of all. Therefore, if you will observe the thorax of the horse even in ordinary breathing, and more particularly when the respiration is quickened, you will perceive that there is far more heaving and falling of the ribs posteriorly than anteriorly.

Comparison between the Intercostals and the Diaphragm.—The ribs, then, while they protect the important viscera of the thorax from injury, are powerful agents in expanding and contracting the chest in the alternate inspiration and expiration of air. In what proportion they discharge the labour of respiration, is a disputed question, and into the consideration of which we are scarcely qualified to enter, until we know something of the respiratory muscle, *par excellence*—the diaphragm. Thus far, however, we may say, that they are not inactive in natural respiration, although they certainly then act only a secondary part; but in hurried respiration, and when the demand for arterialized blood is increased by violent exertion, they are valuable and powerful auxiliaries; while experience teaches us that the animal is at his ease or distressed, galloping pleasantly on or *blown*, laboriously and painfully heaving, just in proportion as the intercostals can then assist, or just as the state of the lungs or the formation of the chest will enable them to act with vigour and effect.

The best Form of the Chest.—Then, gentlemen, this leads us to a very important consideration,—the most advantageous form of the chest for the proper discharge of the natural or extraordinary functions of the thoracic viscera. The contents of the chest are the lungs and the heart; the first to render the blood nutrient and stimulating; to give or restore to it that vitality which will enable it to support every part of the frame in the discharge of its function, and devoid of which the beautiful and complicated machine is at once inert, dead, and still, for it is insensible to nervous stimulus: and the second to convey this purified, arterialized, vital blood to every part of the frame. Then, in order to produce and to convey a sufficient quantity of blood to the various parts that are to be nourished, or to which the power of contractility is to be given, these organs must be large. If it amount not to hypertrophy, the larger the heart and the larger the lungs, the more rapid the process of nutrition, the more perfect the discharge of every animal function.

The Circular Chest.—Then it would appear, that that animal will be fattest and most valuable whose chest is most capacious in proportion to his size; for, remembering what I have said,

that the thorax is always full, whether in its state of expansion or contraction; always in close contact with its contents, it will be evident that the capacity of the chest is the measure of the bulk of its contents. Then as a circle is that figure which contains more than any other of equal girth or admeasurement, it would follow that a circular form of the chest is most advantageous. Not exactly so; for the contents of the chest are alternately expanding and contracting, and the parietes of the chest and the area of the chest must vary with this. The circular chest could not expand, for every change of form would be a diminution of capacity.

Should approach to a circular Form in Cattle.—Then we will alter our proposition a little—that form of chest which approaches nearest to a circle, while it admits of sufficient expansion and contraction, is the best—certainly for some animals, and for all animals under peculiar circumstances, and with reference to the discharge of certain functions. This must be received as a fundamental principle in the breeding of every animal that is valued for quickness of feeding or the accumulation of flesh and fat. It was the grand principle on which Mr. Bakewell proceeded, and on which all our improvements in the breeding of cattle were founded. Mr. Cline says, and truly, that "the power to prepare the greatest quantity of nourishment from a given quantity of food depends principally on the magnitude of the lungs to which the organs of digestion" (and he might have added, all the organs of the frame) "are subservient." Mr. Bakewell laboured hard to get rid of the flat-sidedness of many of our old breeds of cattle. He gave them considerably more breadth before, and when he failed in that, he gave them that filling out at the posterior part of the thorax, which the good judge of the points of cattle likes to see—that progressive and rapid breadth from the elbow backward which never failed to indicate a kindly feeder.

In some Breeds of Horses.—The Heavy-Draught Horse.—The principle holds good with regard to some breeds of horses. We value the heavy draught-horse not only on account of his simple muscular power, but the weight which, by means of that power, he is able to throw into the collar. A light horse may be preferable for light draught, but we must oppose weight to weight when our loads are heavy. In the dray-horse we prize this circular chest, not only that he may be proportionably heavier before (to him no disadvantage, for the weight he has behind him will keep him from falling), but that, by means of the increased capacity of his chest, he may obtain the bulk and size which best fit him for our service. But he would not do for

speed,—he would not do for ordinary quick exertion; and if he were pushed far beyond his pace, he would become broken-winded or have inflamed lungs.

Saddle-Horses.—Some of our saddle-horses and cobs have barrels round enough, and we value them on account of it, for they are always in condition, and we can never tire them. But when we look at them more carefully, there is just that departure from the circular form of which I have spoken,—that happy medium between the circle and the ellipse, which retains the capacity of the one and the expansibility of the other. Such a horse is invaluable for common purposes, but he is seldom a horse of speed: if we let him go his own pace, and that not a slow one, he will work on for ever; but if he is put at his speed, he is soon blown and knocked up. And if by chance, deluded by the common notion of a "good round barrelled horse," we select one who possesses that form a little too perfectly, why, we shall have an animal that will do credit to our keep,—always on the grub,—as fat as a pig, but as lazy as a drone; and lazy, because he feels the inconvenience of rapid progression, in not being able to accommodate the capacity of his chest to the increased demand for arterialized blood; and he feels it much more painfully than we give him credit for, or we should not lay the whip so lustily about him.

The Broad Deep Chest.—Then for the usual purposes of the road, and more particularly for rapid progression, we look out for that form of the chest which shall unite, and to as great a degree as possible, considerable capacity in a quiescent state, and the power of increasing that capacity when the animal requires it. Then we must have the broad chest for the general capacity, and the deep chest for occasional increase of that capacity,—the broad chest for the production of muscles and sinews, and the deep chest, the expansion of which, added to the natural broadness, shall give a capacity, or power of furnishing arterial blood equal to the most rapid exhaustion of vitality.

This form of the chest is consistent with lightness, or at least with all the lightness that we can rationally require. The broad-chested horse, or he that, with moderate depth at the girth, swells and barrels out immediately behind the elbow, may have as light a forehand and as elevated a wither, as the horse with the narrowest chest; while the animal with the barrel approaching too near to rotundity is invariably heavy about the shoulders and low in the withers. It is to the mixture of the Arabian blood that we principally owe this peculiar and advantageous formation of the chest of the horse. The Arab is light; some would say too narrow before, but immediately behind the arms the barrel almost invariably swells out, and leaves plenty of

room, and where it is most wanted, for the play of the lungs; and, at the same time, where the weight does not press so exclusively on the fore-legs, and expose the feet to concussion and injury.

Narrow-chested Horses.—We shall see many horses with narrow chests, and a great deal of daylight under them, that have plenty of spirit and willingness for work. They shew themselves well off, and exhibit the address and gratify the vanity of their riders on the parade or in the park, but they have not the appetite nor the endurance that could carry them through three successive days' hard work. As for the spider-legged, weedy animals that some of our young men are so fond of sporting, he who has looked at the horse with a practised eye would scarcely give them stable-room; while he is often tempted to draw a comparison between the want of capacity in the chest of the horse and the cranium of the rider, not very favourable to the latter.

Thick Wind accompanying the Round Chest.—If we had arrived at the diseases of the chest, I should call on you to exercise your reason, and not to forget what experience has taught you. The circularly-barrelled horse is generally thick-winded. In the first place, he is too fond of eating and drinking, and his gorged stomach is too frequently and too weightily pressing against the diaphragm, and causing increased labour in the muscles of respiration, and, consequently, rapid exhaustion; next, there is so much fat in and about the chest, that the lungs are scarcely capable of long-continued laborious action; and lastly, and most of all, as the circular chest cannot enlarge to any great degree, and yet purified blood must be supplied, what cannot be done by increase of surface must be accomplished by frequency of action, and thence comes inflammation or disorganization.

The narrow-chested Horse subject to Inflammation.—It is worse with the narrow-chested horse, who has scarcely capacity of the thorax sufficient for ordinary exertion; and who is not only deficient in that which gives the power of action to the muscular system, but in that system itself. Five out of six of those who perish from inflamed lungs are narrow-chested animals; and I would almost venture to affirm, that nine out of ten of those who are lost in the field, after a hard day's run, are horses whose training has been neglected, or who have no room for the lungs to expand. We hence learn the most important of all points in the conformation of the horse. An elevated wither, or oblique shoulder, or powerful quarters, are great advantages; but that which is most of all connected with the general health of the animal, and with combined fleetness and bottom, is a deep and broad and swelling chest. After all, however, the arch of the ribs is far less marked in all the mammalia than it is in man, and

the comparative lengthening of the sternum is in all of them remarkable.

Evil of tight Girthing.—If a chest that cannot expand with the increasing expansion and labour of the lungs is so serious a detriment to the horse, every thing that, more than is absolutely necessary, interferes with the action of the intercostal muscles, is carefully to be avoided. Tight girthing ranks among these, and foremost among them. The tightness with which the roller is buckled on in the stable must be a serious inconvenience to the horse; and the partially depriving those muscles of their power of action for so many hours in every day, must indispose them for labour when quicker and fuller respiration is required. At all events, a tight girth, although an almost necessary nuisance, is a very considerable one, when we require from the horse all the exertion of which he is capable. You have perceived the address with which, by bellying out the chest, the old horse renders every attempt to girth him tight comparatively useless; and you have observed, when a horse is blown, what immediate and great relief ungirthing him has afforded, by permitting the intercostals to act with greater power. So easy and effectual a method of relief will not be neglected by him who values the services of his quadruped dependant. If half what is now affirmed of the self-adjusting elastic rollers be true,—if they will retain the saddle secure, yet not interfere with the action of the intercostal muscles,—they will constitute a valuable addition to our horse furniture, and no person of humanity will be without them.

A SERIES OF ESSAYS ON THE BLOOD, BLOOD-VESSELS, AND ABSORBENTS.

By Mr. R. Vines, *V.S., Royal Veterinary College.*

No. III.

At the conclusion of my last communication, I stated that some authors contend for Claus Rudbeche, a Swedish anatomist, as being the first discoverer of the lymphatic vessels; while there are others who maintain that it was Thomas Bartholine, a Dane. The former, it appears, considered the lymphatics as a fifth set of vessels, and denominated them *vasa serosa;* while the latter, in place thereof, termed them *vasa lymphatica,* and which is in accordance with the name they still bear.

We are told that Rudbeche appealed to his scholars and friends for his having a knowledge of the lymphatic vessels before Thomas Bartholine published his description of them; but that

he never was able to persuade the majority of anatomists that the honour of the discovery did not belong to Thomas Bartholine.

Although we are informed that it was these anatomists who first discovered the lymphatic vessels, yet it appears they left this subject in a very unfinished and uninvestigated state, both as regards their *origin, distribution,* and *use.* Consequently the attention of anatomists and physiologists has, from that time to the present, been more or less excited, with a view of bringing this important subject to some acknowledged decision; and among the writers and experimentalists on this point, we have the names of Professors Boerhaave, Malpighi, Ruysh, Nuck, Cowper, Lister, the Hunters, the Munros, Cruikshank, Hewson, Magendie, Flandrin, Fœdera, &c. &c.

Boerhaave, as also his cotemporaries and followers, considered the lymphatics as a system of serous veins; either as taking their immediate origin from or as being a continuation of the minutest terminations of the seriferous arteries; and that their *only use* was, to receive the *transparent,* and refuse the *red* or *coarser* part of the blood. This theory was more generally believed when the fact became known of Nuck, Cowper, Lister, &c. being enabled to inject the lymphatic vessels from the arterial. This continued to be a prevailing opinion until about the middle of the last century; and although it was admitted that the lacteal vessels were for the purpose of *absorbing the chyle,* yet it was generally imagined, according to the old notion, that the *red* and *real* veins were the *principal absorbents of the body,* until Dr. W. Hunter*, in a controversy with Dr. Munro about some discoveries of the lymphatic vessels, by his own imperfect reasoning, and some very rude experiments made by his brother, J. Hunter†, not only attempted to overthrow the doctrine of the lymphatics taking their origin from the arteries, but also endeavoured to prove that they were a *distinct and separate system of vessels, the sole absorbents of the body,* and also that they took their origin from the internal and external surfaces of the body. This idea was founded on the

* See Hunter's Medical Commentaries, 1762.

† So great is the tendency of the human understanding to admit error, that Hunter contrived a false theory upon one of the most important functions of life; and supported it with difficulty upon some inaccurate experiments, which were every way inefficient. His ideas were immediately and universally admitted; they are even *defended at present* with a heat and zeal which truth rarely inspires. Harvey, who instituted so many and such beautiful experiments to demonstrate the circulation of the blood, had to combat, for thirty years, against the imputation of being a visionary, and to obtain a reception for one of the finest discoveries that ever did honour to human ingenuity.—*Magendie's Physiology,* page 312; translated from the French Second Edition, by E. Milligan, M.D. 1826.

known facts, that mercury, when applied to the skin, as well as collections of water, when formed in the abdomen, cellular membrane, &c. were occasionally taken up, conveyed into the circulation, and ultimately became passed off again by secretion: likewise from the great analogy between the lymphatics and lacteals, both as regards their coats, valves, manner of ramifying, &c.; and also from the lacteals being known and admitted to take their origin from the inner surface of the intestines, and being for the purpose of absorbing the chyle from those parts.

If Dr. W. and Mr. J. Hunter had merely confined themselves to the idea of the lymphatic vessels arising and absorbing from surfaces, &c. and then had given to them their proper share, as regards the *function of absorption*, these gentlemen, in my idea, would have made a very important advancement in the science of physiology; but they not only attempted to dispute their origin from the arteries, but also that the *red or real veins had nothing whatever to do with the process of absorption*. By this logic they endeavoured to make the veins appear almost of a similar nature with a set of *inert tubes*, viz. merely for the purpose of conveying back the red blood from the arterial system*.

Dr. Hunter, prior to noticing Mr. J. Hunter's experiments in refutation of venous absorption, and wherein he attempts to establish *the whole process of absorption* by the lymphatics, remarks thus:—" With regard to absorption, I was of opinion that nature had provided a system on purpose, viz., the lymphatic. I considered these vessels and the lacteals as an appendage to the venal system, by which the stores were brought in for supplying the circulation; and the glands and secretory vessels all over the body, I considered as an appendage to the arterial, by which the proper separations were made, and the redundancies thrown off.

" My only doubt was, whether the veins did or did not absorb a certain quantity, especially in the intestines. From my own observations on injections, I should have considered that

* A question is still undetermined, Do the lymphatics absorb the loose or free fluids secreted on the surfaces? Do they always take up what is offered to their mouths, in the same manner that we know they do extravasated blood or bile? And is it the office of the veins to return the matter which formed that part of the texture of animal bodies, and which was never separated from the influence of the circulatory system? What is this carbon the *waste of the animal frame returned by the veins*, and is not this process of the nature of absorption? In short, there appears to me still an open field for inquiry, where an ingenious man may gain, in future, as much reputation as Dr. Hunter and Dr. Munro acquired by their investigations into lymphatic absorption.—*See Sir C. Bell on the Anatomy and Physiology of the Human Body*, Fifth Edition, vol. ii, page 334, 1823.

they did not, and that there was no passage for liquors between an intestine and the mesenteric veins, otherwise than by transudation*. But authors of the best credit had given such arguments and experiments in favour of absorption by veins, that I dared not, in my own mind, even determine the question. At this time my brother was deeply engaged in physiological inquiries, and in making experiments on living animals, and in prosecuting comparative anatomy with great application and accuracy. It is well known that I speak of him with moderation when I say so. He took the subject of absorption into his consideration; and from his observations was inclined to believe, that in the human body there was *one, and but one, system of vessels for absorption.* He knew so well that many things had been asserted by one person after another, which were not true, and so many mistakes had been made from inattention, so many errors introduced from other causes, that he could easily suppose the veins might not, perhaps, absorb, after all the demonstrations that had been given of the fact, and therefore was determined to see how far this point could be cleared up by plain experiments and observations†."

From the time of Mr. J. Hunter to the present, and more particularly in this country, it has been held and taught as a generally received opinion, that in the living body there are three orders of vessels, viz., *arteries, veins,* and *absorbents;* and it has been again admitted, and which is a well known fact, that the lymphatic vessels, as well as taking their origin from surfaces, &c., likewise arise from the extreme branches of the arterial system, as had previously been asserted by Nuck, Cowper, &c. For a further proof of this, I shall introduce some important cases which occurred in the College very shortly after I first discovered

* From my own injections and experiments I am ready to prove that the mesenteric veins, as well as arising from the arteries, also arise from the whole internal surface of the intestinal canal, by *open mouths;* and there are seen by injecting the veins first, and the arteries afterwards, with yellow and red injection, and the mouths of the veins appear almost as numerous as the terminations of the arteries. I am not of opinion that the mesenteric veins have *any share* in the absorption of the chyle; but I have not the least doubt that they have a very great share in the absorption of the other fluids, &c., belonging to the intestinal canal. I find, also, that the veins arise by *open mouths* from the *external surface of the skin,* almost or quite as numerous as the arteries terminate; and a similar thing is to be seen on the external surface of the chorion, or that portion which, in the living state, is attached to the cellular substance that forms the placenta. This is a statement of facts which the followers of Dr. and Mr. J. Hunter will never be able effectually to overthrow.

† Dr. Hunter's Medical Commentaries, part i, page 41. 1762.

that the second class of lacteals were capable of becoming of a similar character to the *red veins.*

CASE I.

A horse died of inflammation of the lungs. On examination, after death, he was found to have a chronic disease of the liver. As the liver was removed, I was much struck with its great increase in size; and while examining more particularly into this, I was still more surprised at finding all the lymphatic vessels belonging to the peritoneal covering of the liver *greatly enlarged,* and containing *dark red blood.* I next examined the thoracic duct, and found it full of dark red blood, and which had coagulated firmly in many places. The lymphatics in all the other parts of the body were of their usual appearance.

CASE II.

A glandered horse was destroyed. On our examining into the state of the lungs, &c., after death, a great number of tubercles were found in many parts of them; and on our minutely examining into the state of the parts diseased, all the lymphatic vessels which arose from them were much larger in size than common, and contained red blood; while, on the contrary, on all those parts of the lungs which were healthy, the lymphatics presented their usual transparent appearance. I next examined the contents of the abdomen, and found the left lobe of the liver slightly diseased, and the lymphatics from it filled with red blood: the right lobe was healthy, and its lymphatics were in their natural state. The fluid in the thoracic duct was almost as red as venous blood.

[To be continued.]

THE EDUCATION OF THE HORSE.

By Mr. W. F. Karkeek, *V.S., Truro.*

[Continued from page 373.]

"And the fear of you, and the dread of you, shall be upon every beast of the earth, and upon every fowl of the air; upon all that moveth upon the earth, and upon all the fishes of the sea; into your hand are they delivered."

This all powerful law, which secured empire to man—the presumptuous but needy lord of the creation—over his elder brethren (for he came into a world already tenanted with in-

habitants), is observed to the present day, and will be, no doubt, to the end of time. With many of them he must for ever live estranged; their natures are opposed to his condition, their qualities are unsuitable to his wants: but with others he enters into association; he tames their dispositions, and bends their qualities to his own use.

Nature endowed every animal with powers sufficient to enable him to enjoy the life to which she destined him, and to oppose or evade the enemies by which he would be surrounded: for this purpose she bestowed on each the formation most conducive to the end proposed, and added a directing principle called *instinct.* Every creature has its own peculiar instinct. It is this impelling principle that guides the eagle to fix her eyry on the summit of the lofty tree, whilst the lark, moved by the same irresistible inclination, places her humble dwelling on the ground.

Instinct, as far as it goes, is superior to reason; but it is for ever fixed—it has its precise limits, and cannot improve or vary its application to difference of circumstance: wherefore animals in a state of nature gain nothing by experience; but when once domesticated, and possessing the principle of imitation, which some of them do in an eminent degree, the minds which they possess become moulded into a different form.

It is a matter of curious speculation, to consider how the instinct of animals grows weaker in proportion to their closer approximation towards mankind and their dwellings. The causes are sufficiently obvious. Nature, both liberal and frugal, always does enough to obtain her purpose, but resumes her gifts when no longer useful. Long slavery has so degraded the natures of some, that the primitive animal may be said to be lost, and degenerated beings are substituted in their places.

Domestication produces different characters in animals, and, by their altered natures, affords to necessitous man his best blessings. The subjugation of the horse is, perhaps, the noblest acquisition from the animal world. His perception and natural talents are very acute; but when aided by instruction, the sagacity he discovers, and the actions he is taught to perform, often excite our wonder.

Three modes of instruction have been found necessary for the perfecting of his education—*punishment, reward,* and *imitation.*

The mind of the colt must be considered as a mere *carte blanche;* and, as in the human subject, the future character will a great deal depend upon the sensations and impressions given to it in early life.

"As the twig is bent, the tree is inclined."

Pleasure and pain are the only movers of the human mind; the same feelings are excited in horses, but with this difference—that the pleasures and pains which actuate the minds of horses are those only which exert their influence upon the organs of sensation; whilst in children, as the faculties of the mind begin to exert their influence, the mind, from her own emotions, and from those ideas which she alone can form and embody, becomes capable of receiving the emotions of *pleasure* and *pain*. Hence, in order to actuate in any manner the minds of animals, a different method must be adopted from that by which we would influence the minds of boys. We must have recourse to bodily punishments, or bodily gratifications, to stimulate their minds to exertion. Indeed, the whole business and aim of their education may be reduced to one simple precept—so to regulate the emotions of pleasure and pain, that the greatest vigour may be imparted to the mind and the body. "The gods," says Zenophon, "have granted speech to men, that they may learn what they ought to do. But you can certainly teach a horse nothing by speech. If, therefore, when he does as you wish, you caress him, and when he is disobedient you punish him, you will thus best teach him to perform what he ought."

Reason and observation afford sufficient proof that horses possess different degrees of sagacity and penetration; and it ought always to be remembered, that they have more reason than they can shew, from their want of words, from our inattention, and from our ignorance of the import of those symbols which they make use of in giving intimation to one another and to us. They are as truly actuated by the feelings and principles of fortitude, fear, joy, courage, timidity, attachment, and prejudice, as the human species. We do not suppose that the reason of brutes and that of mankind is the same: ours is more extensive, our wants are universal, and we, therefore, possess universal reason. Man observes the wants of other animals; "but may it not," says St. Pierre, "be relatively to himself that he has made this his study? If the dog gives himself no concern about the oats of the horse, it is, perhaps, because the horse is not subservient to the wants of the dog." Upon a conviction, then, that the different passions actuate horses as well as men, only in a different manner, we presume to recommend a method of rendering horses subservient to man, more by gentle means than coercive treatment. The talents even of the dull and phlegmatic ox are roused to exertion by education. In our own county (Cornwall), where they are worked in the plough and on the road, they are excited to exertion more by the chaunt of the driver than the prick of the goad. In the southern provinces of Africa and Asia, the wild bisons, or

bunched oxen, which are taken when young and tamed, are soon taught to submit to all kinds of domestic labour; they become so tractable, that they are managed with as much ease as our horses. Their voice of their master is alone sufficient to make them obey, and to direct their course. As their nature is improved by the gentleness of their education, by the kind treatment they receive, and the perpetual attention bestowed on them, they acquire sensibility and intelligence, and perform actions which we could not expect from them. The Hottentots train them to war; they likewise guard the flocks of their masters, which they conduct with dexterity, and defend them from the attacks of strangers and of rapacious animals. They are taught to distinguish friends from enemies; to understand signals, and to obey the commands of their master. When pasturing, at the smallest signal from the keeper, they bring back and collect the wandering animals. They attack all strangers with fury, which renders them a great security against robbers. These *backeleys*, as they are called, know every inhabitant of the krall, and discover the same marks of respect for all the men, women, and children, as a dog does for those who live in his master's house*.

The object of education is, to give to the body the strength designed by nature, and to the mind every perfection which it is capable of receiving. But this cannot be accomplished in a few days, as is oftentimes attempted by country breakers, who in violence and cruelty almost vie with the South Americans† in their attempts to subjugate for the first time the colt.

> "Untired, untamed, and worse than wild;
> All furious as a favour'd child."

* Voyage de Cap, par Kolbe.—*Smellie's Philosophy.*

† "In the Llanos of Venezuela, and in the Pampas of Buenos Ayres, where the richness of the pasture, and extent of level ground, are very great, the number of wild horses and cattle are really incredible. In some places they are so numerous, as to render it necessary for a party of cavalry to precede an army on the march, for the purpose of clearing the way for the infantry and guns.

"The herds of wild horses present a beautiful spectacle, when they are alarmed in their native wilds by the intrusion of an army. Instead of flying, as the deer, and other timid animals, they gallop round in compact masses of many thousands, apparently for the purpose of reconnoitering the strangers; and frequently advance boldly to within a few yards of the line of march, where they halt to gaze at the troops, snorting, and shewing every sign of astonishment and displeasure, especially at sight of the cavalry. These droves are always headed by some fierce-looking old bashaws, whose flowing manes and tails plainly shew that they never had been subjugated to man's controul; and in the rear the mares and colts follow.

"When the *Lláneros* wish to procure horses, they drive together a herd of *Chucaros*, out of which, every man who wants a horse singles out whichever he prefers, and *noozes* him with the *Lazo*. Two or more men hold the

Here we must again recommend the precepts of Virgil to our readers, that the process of "breaking-in" should begin almost immediately after weaning. The foal should be daily handled, "then more and more to rejoice in the soothing applauses of his master, and to love the sound of patting his neck." He should early be accustomed to the halter, and occasionally dressed. This practice of handling the young colts, from the time they are suckling, is calculated to bring them gentle, familiar, and good tempered; a great desideratum to those breeders who may have to send their "two-year-olds" to the neighbouring fairs for the purpose of sale. At two years old, there should be sufficient tackle put on him as to lead him out occasionally to be lounged. After the third winter, the animal should be placed in the hands of the breaker. The colt breaker should not only possess the qualification of being a bold rider, but *judgment*, *temperance*, and *perseverance*, are indispensable for one who attempts to break in the young horse. A coward and a madman make alike bad riders, and

line firmly, until the horse falls from actual strangulation by the halter, which is tightened round his throat by his own violent efforts to escape; while, at the same time, he receives repeated stunning blows on the head with a *bludgeon*, which is used unsparingly during the *first stage* of horse-breaking. While the animal is insensible they tie his legs, put a headstall on him, with a moveable strap, by which his eyes can be covered when necessary, and immediately saddle him; taking particular care that the girths, which are made of twisted hide, are drawn sufficiently tight. They first use a hair rope by way of halter, as the horse cannot, for some time, endure a bit in the mouth, without rearing or falling on the rider. The legs are then untied, and the noose that is round the throat being slackened, the animal in a short time recovers from the temporary strangulation, and rises, but remains quiet,—trembling, however, violently, until his eyes are uncovered. When the rider has mounted, and has well secured himself in his seat, he raises the moveable strap, and the contest commences between the strength and activity of a terrified wild animal struggling for freedom, and the inimitable horsemanship of the Llaneros. The horse appears at first so confused and astonished as to be incapable of motion, but is soon roused by the shouts and blows of the rider's companions. When once he has recovered from his momentary stupor, the exertions that he makes to get rid of his burthen are wonderful, and most trying to the rider. The horse appears to stiffen himself purposely, so as to avoid all pliability in his joints, and makes the rider, by that means, feel the full violence of every severe jolt; which is produced by springing forward in a succession of bounds, striking the ground with all four feet at the same time. As long as the horse continues to plunge in this way, the rider makes frequent use of his cudgel. This violent usage soon breaks the animal's spirits; and in a day or two he begins to move in a slow unwilling trot, which is considered as a certain symptom of his commencing to be tamed."—*Campaigns in Venezuela and New Grenada.*

are both alike discovered and confounded by the superior sense of the creature they are mounted upon, who is equally spoiled by both, though in different ways. The coward, by suffering the animal to have his own way, not only confirms him in his bad habits, but creates new ones in him; and the madman, by false and violent motions, drives the horse, through despair, into every bad and vicious trick that rage can suggest, making a creature, that is naturally benevolent, restive, frightened, and vicious.

With horses of great spirit and mettle, recourse is sometimes had to depriving them of their proper allowance of food and water, in order to subjugate them to the will of the breaker. None but cowards will have resort to such a method: a dull and sluggish animal will endure this treatment; but a spirited and generous beast, whose opposition arises from *fear*, and not from *vice*, is by these means oftentimes transformed into a mischievous and dangerous animal.

There are many instances on record of horses recollecting injuries, and their attempts to revenge them. "In 1734, the horse of a nobleman of Ireland ran at a man, seized him with his teeth by the arm, which he broke; he then threw him down, and lay upon him. Every effort to get him off proving unavailing, they were forced to shoot him. The reason assigned for this ferocity was, that he had been castrated by this man some time before, which the animal seems to have remembered."

A singular anecdote of determined revenge, from the recollection of injuries on the part of a horse, and an attempt to revenge them, is related in the "Younger Son." An Arab horse, which had been purchased by the colonel of the regiment at a great price, on first entering the service was *quiet and tractable*, but from bad management became vicious and violent. One of the soldiers undertook to *tame him*, or *kill him*. He tried in vain to bring down his mettle by *hard work, deprivation of food*, and *severe punishments*. This plan only rendered him more furious and watchful, for the animal, it appears, watched with wonderful cunning, ever afterwards, every occasion of kicking and biting him. To no other person did he shew this spirit of animosity. At one time he got hold of the soldier by the back, and lifted him into the manger, when, had he not obtained speedy assistance, he must have been killed. Whenever he rode him, he used every artifice to throw him, which he had never been able to achieve but once; when, as the soldier was lying doubled up, he broke his arm and leg; then, after going a short distance, he stopped, and wheeled round to renew the blow. The man with

difficulty drew his sword, and, though he wounded him in several places, the horse only grew more savage. When nearly exhausted, the author* makes his appearance in time to slay the animal and save the poor fellow's life. He describes the appearance of the horse and soldier in the following manner:—" The animal's eye and expanded nostrils were of deep crimson; and the blood from several gashes on his head, neck, and flanks, mingled with the white foam on his bright black skin. With erect mane and tail, and open mouth, he came up within a few yards of me: I pulled up, and drew my sabre. He then wheeled round, and, making several circles within each other in rapid motion, he flung out his hind legs at the prostrate soldier, whose sword defended him with difficulty. The horse endeavoured to avoid being cut by alertness and rapidity. The saddle and housings, lying by the man, in some measure protected him. On being foiled in striking with his hind feet, the horse turned round short on his haunches, and, with startling ferocity, plunged in head foremost, like a tiger, striking with his fore feet right out, and even trying to get hold of the man with his teeth." Here was a revolution,—the horse attempting to kill his rider, and using his armed hoofs against his head! " Pushing in to the rescue, I endeavoured to get between the two, but it was no easy matter, for the horse made no attack on me; on the contrary, he used every effort to avoid my interference. I hallooed, and tried to drive him off. He retreated a hundred yards, when as, *once or twice*, I was dismounting to succour the apparently exhausted man, he returned to the charge. However, from exertion and loss of blood, he waxed weak and less wary; so that, after many abortive attempts, I succeeded in ham-stringing him. He now gave one loud bellow, and strove, with a staggering gait, to gallop off, frequently falling. I followed, and had several cuts at him, till, faint from loss of blood, he fell unable to rise."

Severity is rarely necessary in breaking in the colt, and in the generality of cases it is altogether uncalled for. But if the animal dispute your commands, recourse then must be had to coercion and punishment; and " he must at once be taught that he is the slave of man, and that we have the power, by other means than those of kindness, to bend him to our will." We never should employ coercion when we have it in our power to produce the same by pleasurable excitement. It is impossible to be too circumspect either in administering chastisements or caresses. How to manage this requires a good head, and likewise a good

* The celebrated Trelawny.

heart, on the part of the breaker. The coolest and best-natured rider will always succeed best. Horses have, as we before stated, very retentive memories, and seldom forget whatever unruly tricks or habits they acquire from being improperly handled in the breaking. Children are extremely alert in imitating the actions, the gestures, and the manners of those with whom they associate. They are dexterous in perceiving ridiculous figures and representations, which they imitate with ease and propriety. By imitation also young animals model their actions entirely upon those of the old. We have known many young horses become inveterate cribbiters in a single night, merely by imitating a cribbiting companion. Wind-sucking is another ill habit, acquired by imitation. Slipping the collar or halter, pawing and scraping the litter, rolling in the stall, tearing off the clothing, are all habits which, when once acquired, are never or very seldom removed, and shew how soon

"Ill customs by degrees to habits rise."

Kicking in the stable, and biting, are, perhaps, the most dangerous habits that horses acquire.

Some horses are difficult to shoe: this in great measure depends upon the "breaking;" and all such habits as restlessness and difficulty in saddling, mounting, or dismounting (which is particularly observable in horses of warm temperaments), may be prevented by kind and gentle management. Old habits and propensities are rarely ever forgotten. The crippled hunter pricks up his ears at the music of the hounds; and the old charger retains, as long as he lives, a remembrance of his past services.

"And when the drum beats briskly on the gale,
The war-worn courser charges at the sound,
And with young vigour wheels the pasture ground."

"About the period of the first American war*, the horses of a heavy dragoon regiment, during the summer months, were sent to grass at Haverscroft, a village between Barnsly and Pontefract, in the West Riding of the county of York. One hot summer day, a tremendous thunder storm occurring, these horses, occupying a small enclosure, were observed to collect in a body, and afterwards '*form in a line*,' with as much regularity and exactness as when exercised on a field day; and whilst the 'thunder rolled its awful burden to the wind,' and the lightning glared on every side, maintained their position during the continuance of the storm; exhibiting a most astonishing proof of animal sagacity, and one of the most magnificent spectacles that the mind can well conceive."

* Brown's Anecdotes of Horses.

A remarkable anecdote, shewing the force of habit in horses, is related by Southey, in his History of the Peninsular War. The historian gives it on the authority of Sir Richard Keats; it is, therefore, undoubted. The circumstance occurred during Romana's escape from the territory of Denmark. Two of the regiments (Spanish) which had been quartered in Funen were cavalry, mounted on the fine black long-tailed Andalusian horses. It was impossible to bring off these horses, about 1100 in number; and Romana was not a man who could order them to be destroyed, lest they should fall into the hands of the French. He was fond of horses himself, and knew that every man was attached to the beast which had carried him so far and so faithfully. Their bridles, therefore, were taken off, and they were turned loose upon the beach. As they moved off, they passed some of the country horses and mares which were feeding at a little distance. A scene ensued such as probably never before was witnessed. The Spanish horses are not mutilated, and they were sensible that they were no longer under any restraint of human power. A general conflict ensued, in which, retaining the discipline they had learnt, they charged each other in squadrons of ten or twenty together; then closely engaged, striking with their fore feet, and biting and tearing each other with the most ferocious rage, and trampling over those which were beaten down, till the shore, in the course of a quarter of an hour, was strewn with the dead and disabled. Part of them had been set free on a rising ground at some distance; they no sooner heard the roar of the battle, than they came thundering down over the intermediate hedges, and, catching the contagious madness, plunged into the fight with equal fury. Sublime as the scene was, it was too horrible to be long contemplated; and Romana, in mercy, gave orders for destroying them: but it was found too dangerous to attempt this; and after the last boats quitted the beach, the few horses that remained were seen still engaged in the dreadful work of mutual destruction."

This story has led to a supposition that horses possess natural belligerent propensities. Zenophon remarks, that "the Athenian war horses were taught to swim, rear, kick, and bite:" whether the Spanish horses ever received such an education, perhaps some of the readers of THE VETERINARIAN will be able to inform us.

W. F. K. presents his compliments to Mr. PRITCHARD, and begs to inform him, that he is extremely sorry he should have written any thing to

> "Exasperate, exulcerate, and raise
> Dire inflammation;"

and produce such irascible feelings as were displayed in Mr. P.'s rejoinder in THE VETERINARIAN for July last. He has, in compliance with Mr. P.'s wish, read his letter over again; and though by this he does court the knock-down blow of criticism, and seems to beg a reasonable thwack upon his shoulders, with as much good will as ever did the foolish bird, the penguin, her death at the hands of a sailor in the South Seas, he refrains, in mercy to the readers of THE VETERINARIAN, from troubling them any further in the matter; for to form a just conception of what Mr. PRITCHARD intended to convey in his letter, would be attended with as much trouble and difficulty as the unrolling of the antique parchments of the Herculaneum, or the Egyptian papyri; and, like them, when deciphered, not worth the trouble.

A CASE OF VIVES.

By Mr. COLE, *V.S., Bognor.*

To the Editors of "The Veterinarian."

Gentlemen,

Having since its commencement read, with much pleasure, and advantage, your interesting and useful publication THE VETERINARIAN, I beg to enclose you a case of vives which I have lately successfully treated: although the case may appear common, the treatment frequently used proves unsuccessful. You will, I hope, deem it worth insertion.

Arran Lodge, Bognor, Sussex, Sept. 1832. JEREMIAH COLE.

THE horse came off a journey on the 25th of July, 1832, and was placed under my care on the 30th. He had previously been hard-worked, and was suffering much from constitutional derangement: pulse 40. The first symptom that presented itself was a swelling of the parotid gland, which gradually spread downward under the throat.

August 1st.—Warm fomentations were applied to the parts, and a poultice used, made by boiling two poppy heads in a pint of water to half a pint, and adding a tablespoonful of yeast, and a sufficient quantity of linseed powder to form the poultice: it remained on for twenty-four hours; I again fomented, and then repeated the poultice. The tumour continued gradually to increase in size for three or four days: upon pressure a fluid was detected, which gave evidence of the process of suppuration.

August 6th.—Being apprehensive of farcy, I gave a dose of opening physic, which materially retarded the suppuration; and

then suspecting absorption would take place, I rather encouraged it, by using a cold lotion of vinegar, Goulard's extract, and sal ammoniac: until the 7th the tumour again began to increase in size, and grow soft.

August 9th.—Cough troublesome; pulse 50; a thickened straw-coloured mucus, evidently mingled with matter or pus, was coughed out in masses two or three times in the day; the discharge not offensive to the smell.

16*th.*—The tumour was opened, half a pint of matter escaped; the poultice was kept to the part.

18*th.*—The inflammation flew to the region of the œsophagus, which almost produced suffocation: a blister was immediately applied, which had the desired effect.

21*st.*—The patient swallowed with greater ease; the incision was kept open with a tent.

25*th.*—Doing well, appetite better, discharge healthy.

27*th.*—The part perfectly cleansed.

30*th.*—The opening closed, the patient's health and constitution quite restored, and he is now able to follow his usual work.

LOCAL CONGESTION OR INFLAMMATION IN PUERPERAL OR MILK FEVER IN COWS.

By Mr. J. Hayes, *V.S., Rochdale, Lancashire.*

Having been a constant reader of The Veterinarian for the last two years, but never having seen either in that, or any other veterinary work, any account of a case of this nature; and having seen (what I think) too much extraneous matter inserted in The Veterinarian, for want of something better, I beg leave to lay before you the following records from my case-book.

On the 14th of last January I was called in to see a small half-bred cow, belonging to a farmer near this place. It was about 11 o'clock at night: she had calved that morning, and appeared doing well, until about 5 o'clock in the afternoon, when she began to shiver, &c., shewing all the symptoms of puerperal fever. They had given her a pound of butter before she fell down. I found her down, unable to stand, with extremities cold, eyes fixed, mouth and nose hot and parched; no use in her legs; great depression of spirits, with total loss of appetite: pulse 70, respiration 65, with grunting, moaning, &c.; shewing great internal pain.

I immediately abstracted seven pounds of blood, and gave her the following medicine:—℞ Glauber salts, one pound; nitre and cream of tartar, each ℥iiij; tartarized antimony, ʒij; powdered hellebore, ʒi; sulph. ℥iiij; liquorice powder, ℥i, in water gruel; with butter and treacle, each ℥iij. I ordered the body and legs to be well rubbed and covered up with rugs and straw, to bring on perspiration: there was a total suppression of milk.

15*th*.—Extremities something warmer, perspires freely, pulse about sixty, and stronger; respiration seventy; no discharge: administer an enema; give the following drink:—℞ Glauber salts, ℥vj; nitre, and cream of tartar, each ℥iiij; sulph. ℥iij; tartarized antimony, ʒi; hellebore, ʒss; liquorice powder, ℥i; powdered aniseed and mustard seeds, of each half an ounce; with butter and treacle as before. She had a small discharge of fæcal matter, and a large quantity of urine passed at night. I ordered water gruel three times a-day.

16*th*.—Rather better; a great discharge of fæces; takes more notice; drinks gruel; pulse fifty-four; respiration fifty; perspires profusely; kept so by clothing and rubbing: extremities warmer, mouth and nose moist; but she is still unable to get up. Repeat the last drink with only ℥iiij of salts.

17*th*.—Much better; pulse forty-six; respiration fifty-four; extremities warm: takes gruel and hay, and bran mashes. Milk increasing; is more lively, but not able to get up. I gave half of last drink.

18*th*.—Still mending; she got up, but was lame of one hind leg.

19*th*.—I found her labouring under great local pain, from excessive swelling of the right thigh and hip: in fact, the whole leg and thigh, from the hock to the sacrum, was distended as much as the integument would admit of, and in a complete state of gangrene. I made long and deep incisions into the parts, when about three quarts of a thin, blackish, bloody fluid, flowed out, mixed with deposits of puriform and fibrous matter, more or less condensed. This discharge continued to the amount of several quarts every day. I fomented the part three times a-day with very hot water, and a strong stimulating mixture was rubbed in betwixt the times of fomenting.

21*st*.—Appears to be doing well, except that abscesses are forming all along, and through the thigh, &c., running along the muscles, to the very bone; and perfectly dividing all the muscles, one from another, the whole length of the thigh and hip, and destroying the cellular membrane that unites the muscles together; large pieces of which, in a half decomposed state, and very fœtid, were removed every time the ulcer was dressed, to the amount of fourteen ounces at a time. Large quantities of

putrid matter, mixed with small fibrous particles, were also constantly running out. The fomentations were continued, with injections into the abscesses, of chloride of soda and tincture of myrrh and aloes; sometimes pouring very hot digestive ointment into the abscesses, and stimulating mixtures being applied externally as before. She now stands up a little at times, but lays no weight on that leg, except when forced to walk, when she will let the hock rest upon the ground, like a rabbit.

This treatment was continued till the middle of March; the abscesses gradually cleaning and healing, and the cow giving nearly her full quantity of milk most of the time. At that period the abscesses were healed, but she had no strength in the leg above the hock, but still went like a rabbit on that leg, with the hock on the ground. I now blistered the thigh repeatedly, which had a good effect in causing the muscles to unite again, and stimulating the parts to action. She was turned out to grass in April, where she recovered nearly the full tone of the part in about a month. When she was first turned out to grass, that quarter was not half the size of the other, but it soon got quite as plump as the other: she is now well, and milking as abundantly as she ever did.

I have met with many cases of this kind in my practice, most of which I treated on a more decidedly depletive system, with cooling embrocations and emollient applications to the local swelling of the thigh, none of which proved successful; but since I commenced the above plan, I have not once failed of making a complete cure. I now go to a case of this kind with perfect confidence, for I have tried this mode of treatment in more than thirty cases, without witnessing one failure.

ON CATARRHAL FEVER.

By the same.

In "The Veterinarian" of April last, Mr. W. Percivall gives an account of epidemic catarrhal fever being prevalent among the horses under his care during the last spring. Perhaps you will give me leave to state what has come under my observation: sixty horses affected with a febrile catarrh, developed with exactly the same symptoms, have come under my care since the last spring, 1832. In twenty of them I followed, as nearly as possible, Mr. Percivall's method, giving aloetic purges, &c.; but they did not recover so soon nor so perfectly as I thought

they might. I therefore tried another plan, which I found to answer much better; and especially as the horses treated on Mr. Percivall's plan did not thrive well for some time after the disease was apparently removed: but by the following treatment they not only get well sooner, but thrive abundantly better afterwards. The following is the history and result of my treatment in forty cases:—If in high condition, I took about 6℔ of blood, and then administered Glauber salts, ℥xvj; nitre, ℥v; cream of tartar, ʒiiij; tartarized antimony, ʒj; sulphur, ℥ij; caraway powder, ℥j; liquorice powder, ℥j, in water gruel, four ounces of treacle being added; and the whole given on an empty stomach, and the horse kept fasting for an hour afterward, giving him warm water and a little corn in his mashes, warm clothing, and gentle exercise. In about eighteen hours after the drink had been given, I repeated it, with the exception of its containing only ℥iiij of Glauber salts. Forty hours after the second drink, I gave the following:—nitre and ginger, each ʒij; caraway powder, ℥ij; powdered gentian, ʒiiij; pulverized mustard seed, ʒij; to be given in a quart of hot ale or porter, and after which they required nothing more. If the horse was not much reduced, he did never require the third drink, the two first restoring him immediately. I never bled if they were low in condition at the commencement. If there was swelling or soreness of the throat, I applied a stimulating liniment: in some very bad cases I applied liquid blister. This treatment I varied according to the symptoms of the case.

I fear these simple remarks will appear somewhat presumptuous, especially as opposed to that star of our profession, Mr. W. Percivall's method; but the unprejudiced practitioner who will make trial of the two methods of treatment, will adopt that which he finds attended by the most successful issue.

ON VETERINARY JURISPRUDENCE.

By Mr. W. Dick, *Edinburgh.*

To the Editors of "The Veterinarian."

Gentlemen,

There is, perhaps, no subject which appears in The Veterinarian which better deserves a place than that of Veterinary Jurisprudence; and however desirable it would have been that the subject should have been more fully discussed than it has yet been, and however well deserving the attention of your cor-

respondents, there cannot be a doubt but that the truest and most useful elucidation of the subject is alone to be obtained by laying before your readers a detailed account of cases as they occur, the evidence given, and the decisions pronounced. By laying the case before the profession every one has an opportunity of forming his own opinion upon the subject, and will often derive advantages by observing the principles and science which has led to the conclusions in the case. When a case is thus laid before the public, it is, I presume, a fair subject for criticism; but while critics are allowed the prerogative of offering their remarks, it is equally legitimate for the criticised to criticise the critic. I therefore hope you will allow me to make a few remarks regarding a case sent you from Kincardineshire, by Mr. Cowie, and inserted in your Number for May last. I should not have thought this necessary had Mr. Cowie given a fair statement of the case, or been less profuse in his remarks and italics. Struck, however, by the peculiarity of the printing, and being also a witness in the case, I had the curiosity to make some inquiry regarding the evidence which appeared to me so inconsistent: waiting for such information, I have delayed until now forwarding this communication, because I consider it necessary, that when a writer undertakes to shew the quackery and errors of others, he ought to endeavour to know fully the subject upon which he writes, and to avoid quackery himself. Whether Mr. Cowie has done this or not, I will not hastily pronounce; but that he is either a young practitioner, or an imprudent writer, or both, will, perhaps, afterwards appear. The subject of dispute was, whether or not a horse sold by Mr. Hanton, a dealer, to Mr. Thom, a farmer, was affected with a disease termed "the chords" at the time of sale. To prove that the horse was so affected, a variety of evidence was adduced by Mr. Thom, which was sufficient to satisfy the judges that the disease did exist at the time of sale; but their judgment, and the opinion of the witnesses, are one and all questioned by Mr. Cowie, who considers it "doubtful whether the horse laboured under the chords at all." Such being the case, it will not, I hope, be considered unfair for one of the witnesses to turn round on this self-elected judge, and ask, what he knows about the chords; and to question, whether he is not liable to be enrolled in the list of those quacks who "must almost always be situated alike with regard to their knowledge of the nature of existing diseases." "A quack," says Dr. Johnson, "is a boasted pretender to arts he does not understand: a vain boasting pretender to physic; one who proclaims his own medical abilities in public places." In order to ascertain whether Mr. Cowie has any connexion with

such a class, it is necessary to inquire for what purpose the case was communicated? Was it with the simple view of bringing a particular case before the profession, or to promote a further knowledge of veterinary jurisprudence? if so, why not give an impartial report? It is, however, self-evident that the case was brought forward for no such purposes; but that, on the contrary, it was mainly intended to shew the knowledge Mr. Cowie had acquired, and how he could expose, by his conclusions, the ignorance of his contemporaries. Phrenologists have discovered that there is an organ of caution in the brain, and Mr. Cowie may have this organ; but in the communication I allude to, his other propensities have most certainly predominated, and he has hence been led to do an act of injustice, which is either inconsistent with honesty or of that degree of knowledge which a man ought to possess who attempts to arraign the ignorance of his neighbours. Any one reading over the case, as reported by Mr. Cowie, must certainly conclude that the practitioners in his part of the country are a set of the grossest quacks that ever pretended to physic; but this is no difficult matter, in any case, if the reporter chooses to give such a garbled statement as Mr. Cowie has done; and although it is not my intention to attempt to exonerate my fellow witnesses or myself from the professional blunders we may have committed, I cannot allow such a grossly partial and garbled statement to appear, without endeavouring to place the case in its true light, and exposing the motives of one who would wish to traduce his neighbours. I have been more particularly induced to do this, because one of the witnesses, Mr. D. Smith, Fettercairn, formerly a pupil of mine, is made by Mr. Cowie's report to give opinions which are sufficiently absurd; but which, when stated as was given in his evidence, will appear most materially different, and his reasons sufficiently plausible.

Of the other witnesses I know nothing but their names; but as I find their evidence also mis-stated, I shall shew, as shortly as possible, wherein this exists. The first inaccuracy I observe is, that Mr. Cowie reports the horse as having got worse in two days after he was taken home; while the evidence says that for ten days he continued in the same state as he was observed to be on the morning after he was purchased: this is obviously material in forming an opinion of the case, because it marks, in some considerable degree, the progress of the disease, pointing out the strong probability of its having existed prior to the sale, and at the same time corroborates the evidence given by some of the witnesses.

The first witness Mr. Cowie attacks is John Beattie, who is stated as a compounder of specifics for the cure of all diseases:

"he gave the animal laxative and *tonic* medicines, &c. &c." The account as stated in the evidence is this—"that he (John Beattie) bled the horse in the neck vein, and gave him a laxative drink, and raked the horse, and gave an injection. That he does not recollect doing any thing else to the horse; that when he saw the said horse next, he gave him an injection; but whether he gave him any more laxative medicine he does not recollect. That he afterwards bled the horse, blistered him, and put a rowel into him. If he recollects rightly, said horse was blistered twice; that he dressed the rowel about twenty times; that if he recollects, horse got two or three doses of laxative medicine; that horse also got some tonic medicine."

The second witness is John Low, who states, he was called to visit the horse after he had been ill for sixteen days. This is omitted in Mr. Cowie's report; while he has introduced the words "he applied the remedies *most approved, viz.* putting a rowel," &c.: in the evidence it stands, "he applied the remedies of putting a rowel," &c.

Regarding third witness, John Watson: after the word "staggering," Mr. Cowie has omitted, "that the disease was in an advanced state, and the horse was unable to lower his head; for the word *it* in italics should be read, "horses affected with it having the desire without the power to eat."

I shall pass the next three witnesses, John Attenburrow, Thomas Smith, and Benjamin Kitching, simply remarking, that if Mr. Cowie had introduced the words blistering "on the head," as is to be found in the written evidence by J. Attenburrow, there would appear nothing strange in saying it would make even "a horse look stupid independent of disease;" and will proceed to David Smith, of Fettercairn, who is stated by Mr. Cowie to have given the following evidence:—"David Smith, of Fettercairn, studied under Mr. Dick, of Edinburgh; knows a disease called chords, but more properly tetanus; that it may arise from any local cause, as from *contracted hoofs*, as they generally produce pain: *that this complaint is more likely to arise in horses with contracted hoofs than not.* The disease can be cured if properly treated. Saw the horse in question after he got better, and found him have contracted hoofs."

In the evidence, however, we find it stated as follows:—David Smith says, "the horse's hoofs were a good deal contracted." "That chords may arise from any local pain, and also from contracted hoofs, as they generally produce pain;—that contracted hooves is no symptom of chords;—that said complaint does not generally follow contracted hooves;—that this complaint is more likely to arise in horses with contracted hooves than in horses

with hooves not contracted ;—that said horse was noways disfigured in his appearance by cutting or otherwise." "That he knows a complaint in horses called sleepy staggers; that this complaint is not like the chords, because a horse labouring under sleepy staggers can bend his head to the ground, while a horse labouring under the chords cannot. That he knows a disease in horses called strangles ; that the strangles is quite distinct from any of the other two complaints just mentioned, and does not approximate to either. That the chords or tetanus is a disease which can be cured by proper treatment." I shall here let the report and the evidence speak for themselves, and proceed now to notice, that Mr. Cowie doubts (as before stated) whether the horse in question laboured under "the chords" at all. He does this because some of the witnesses say, that the brain seemed to be affected, the horse occasionally staggering; and because he recollects a similar case which occurred at the College, during his pupillage, of a stout chestnut horse being affected with what may be described as chronic staggers ; and (he goes on to state) "I recollect seeing him morning after morning being taken out to grass for several successive weeks, with much inclination to eat, without the power of bending his head. Blundering and ignorant farriers and *others* might have called this a defect in the muscles of the neck, back, and loins, as well as what it really was,—a chronic disease of the brain." Now this is all very well in the way of mere assertion ; but what proof, I ask, has Mr. Cowie given to shew that this was not a case of chords : let him shew it. Mr. Cowie, it would appear, has not been long enough in practice to have met with a case of chords, or at least does not know diseases under that name : I must, therefore, inform him, that the term chords is in very general use throughout many parts of Scotland, and is applied to a variety of diseases. This accounts for the different descriptions of the disease given in this case by the various witnesses. From what source the term has been derived I am unable fully to explain ; but it appears to be more from the symptoms of the disease than from anything I can find ; and in this farriers are borne out by the example of others. Thus the term chordee is so derived by the French ; and we find farcy described as the chords, because it is said "the *veins* are chorded." A weed is termed the chords, because "the leg is swelled and the vessels corded." We find tetanus called the chords, because "the neck is corded." The strangles are called the chords, because "the throat is swelled and chorded." These are phrases in common use, and must have been met with by every practitioner in Scotland ; but the term is also applied to the case in question, and is not less appropriate than many

others in our profession. But there is another source from whence it has, perhaps, been derived by corruption of terms, that is, chorea, St. Vitus's dance; and I mention this, which is, perhaps, far fetched, because the disease in some instances has a considerable resemblance, of which I shall give an example:—On the 12th August, 1829, a brown gelding, belonging to Mr. Wilson Jardiner, King's Park, Holyrood, was brought to me affected with "a peculiar stiffness" (as the driver expressed it), and with a trembling spasmodic action of the muscles of all the limbs, which was more particularly observable on the animal being put in motion after having stood in a settled position for a short time. The action of the hind legs resembled that of a horse much affected with stringhalt. The spasms of the muscles of the fore legs was also very distinct and curious, the extensor tendons starting out, as it were, from the bone, acting individually and irregularly by jerks, or remaining raised and in action for a few minutes, or excited by the slightest disturbance which was given to the animal, producing at times such a degree of rigid extension, as to cause the animal to strike the toe upon the ground in moving. This was more especially the case with the off fore foot. The whole symptoms combined gave the animal somewhat the appearance of being attacked with tetanus; but the irregularity of the spasms and the motions of the animal approached more to the disease known in the human being as St. Vitus's dance; it also closely resembled in several respects the disease, which, when a horse is affected with it, has led Mr. Sewell, I am informed, to denominate him "a shiverer." In this case, however, the symptoms were as well marked, when the animal was moved forwards, as when he was put backwards (the action by which the latter is at once detected), and which serves to distinguish it. He had been bad a week or ten days before I saw him, and had been bled; his pulse forty-five; feeding freely on grass, and oats and bran: the muscles of the eyes were not affected. He recovered in six weeks. But there is still another form of the chords, which puts on more the symptoms of a rheumatic affection of the muscles of the neck and trunk, and which is accompanied with derangement of the bowels, and a hidebound condition of the skin, and unthrifty state of the coat: the animal seems so sore, that he is even afraid of being touched with the finger. He is as "stiff as a post;" and if not turned round slowly and cautiously, he groans with the pain occasioned by the movement: he is quite unable to reach the ground with his mouth, and would therefore starve at grass. I had a case of this kind about three months ago in a favourite old carriage horse belonging to a lady: he was attacked with the disease at grass,

and was noticed for some time not to eat freely: at length he became so stiff, that he fed almost entirely upon the hedges for some days before any thing was considered wrong with him. In those cases there is not the slightest symptom of an affection of the brain, and is, so far as I have observed, equally as slow in its progress as the other species. In some cases I have found these symptoms the precursor of farcy or glanders; and in one or two cases, in which I have had an opportunity of examining the pathological state of the animal after death, which had been so affected, I have found the cellular tissue in the interstices of the muscles of the back and neck so vascular, as to appear as if filled with extravasated blood. I must now have done, as I find this sheet, notwithstanding its size, is getting filled; but before doing so, must just notice, that if the case was what I suppose it to have been (for both I and several of the other witnesses never having seen the case, can only suppose we are correct), then, I say, Mr. Cowie is wrong in condemning the measures adopted by those who treated the case, because he afterwards recommends what they had done, with the exception of the use of tonics; but if he calls the use of such remedies quackery, when combined with the others, then he must also call Dr. Elliotson a quack, even although he is daily in the successful practice of remedies.

SOME OBSERVATIONS ON SHOEING.

By J. Castley, *V.S. 12th Royal Lancers.*

It may, I think, be assumed as an aphorism in shoeing, that there is no one form of horseshoe which has yet been invented, or which the ingenuity of man can invent, equally suited to all kinds of feet. Nor ought we to be at all surprised at this, when we consider the great variety of form and character observable in the hoofs of horses; the various treatment to which the animal is subjected; and other circumstances connected with this very important part of veterinary practice.

Every form of horseshoe that has from time to time been brought forward, not only *has had,* but still has, its advocates and its adherents. Almost every one has some particular advantage or recommendation, and merits more or less our attention. The true art of shoeing may therefore be said to consist *far more* in the right application than in the make of the shoe itself, or in any one exclusive and uniform plan. There are, it is true, certain rules equally applicable to all. Some general principles

are always to be adhered to, but the practice must vary as the varying nature of the case may require. For instance, the nails are only to be driven through the crust or outer wall of the foot; and no part of the shoe is ever to rest upon the sole. But to apply a shoe of the same form and make indiscriminately to all;—to a weak and to a strong foot;—to one that has upright and one that has low heels, although the shoe may be exceedingly well made, is still bad shoeing; because it shews a want of sufficient judgment and discrimination in the artist.

Here it may not be amiss to take a short view of some of the leading forms of horseshoe, such as have either claimed the greatest degree of merit from their principles, or are most in use amongst us.

The *common seated shoe,* which has so long been in very general use throughout the British isles, first, I think, met with a strong advocate in Mr. J. Clark, of Edinburgh (whose book on shoeing is dated 1782), and afterwards with a still more powerful friend in the late Mr. Morecroft. It is undeniably an excellent form as far as regards what may be called the two first principles of shoeing, viz. avoidance of pressure on the sole, and safety in nailing. But we find it does not prevent the heels of the hoof from contracting; and therefore, although it may be a very good shoe for perhaps the majority of feet, yet it is by no means the best that can be applied to such hoofs as have a strong tendency to contraction.

The *hinge-toed shoe,* brought forward in such a favourable light before the public by Mr. Bracy Clark, is one formed upon an excellent theoretical principle, viz. that it will allow of the natural expansion of the heels on contact with the ground; which lateral expansion we observe takes place, to a certain degree, at every step, in the natural and unshod hoof. Now this is a very good principle to go upon, but unfortunately this shoe is quite impracticable in a very great number of feet. If the hoof be sufficiently strong to hold the nails without splitting, there cannot, perhaps, be a better contrived shoe to prevent or remove contraction of the heels. But wherever the crust is not exceedingly strong, the *great stress upon the nails,* from the continual sideway expansion of the shoe, must infallibly tear away their hold, leaving the hoof in a broken and bare state; and if persevered in, perhaps, at last, untenable for nails, or a shoe of any form.

The curve-toed shoe, with the French method of nailing, first adopted by Mr. Goodwin, and so ably advocated by that authority in his excellent Treatise on Shoeing, offers a form which, at first sight, promises many advantages. I have, however, seen much

mischief done by the indiscriminate use of this shoe. Nails driven in the French mode are apt to make sideway pressure against the sole, and often produce chronic disease of the laminæ. And I myself have witnessed two or three instances where sinking of the coffin-bone was apparently the consequence of (perhaps immoderately) cutting away the hoof at the toe, in order to admit the curve of that part of the shoe. This method has therefore its objectionable points.

The frog-bar shoe, brought forward by Mr. Coleman, has proved a complete failure as a shoe for general use. Frog pessure, so enthusiastically advocated by our ingenious Professor throughout a long life, has been found on various trials to be inapplicable in shoeing. We see the frog in the natural and unshod hoof resting upon the ground, and we thence infer it is destined to receive pressure; but if we fix a bar of iron over it, we find it will soon become diseased, and the animal will often go crippled or tender under this mode of shoeing. In this instance, as, indeed, in many others, we find that that which is right in theory may be wrong in practice. But although every attempt to render the frog-bar shoe available as a shoe for common use has turned out a wofu l failure, even in the hands of the Professor himself, yet, as a remedial means, its occasional application to contracted feet, &c. is often attended with great and decided benefit, as I myself can testify on many occasions, and should never be totally laid aside in veterinary practice.

The frog pressure fever has now passed, and more recently my friend, Mr. James Turner, as fervently fancies he has discovered the *ne plus ultra* of shoeing in the *one-side nailing*. This method, of which he is the champion, certainly does possess a great advantage; inasmuch as that, by leaving unfettered all the inner portion of the hoof, it offers no resistance or impediment to the lateral expansion of the heels, a great desideratum in shoeing; and no doubt it must be an excellent plan for a great number of feet—for such as have strong hoofs and a tendency to contraction. But it also has its objectionable points with regard to feet of another description. Many of those persons who have already given it a trial, seem to be very wide of Mr. Turner's opinion as to merits and perfections. And our friend may yet live long enough in the world to see the impossibility of making everybody think as he does, upon a matter which he considers at once so simple, so plain, and so apparent.

There is no point, perhaps, upon which veterinary practitioners are so little agreed as upon shoeing. And I have touched upon these few main features of the subject, principally with a view to shew that we ought neither to be prejudiced against any par-

ticular plan, nor to shut ourselves up exclusively in our own. I venture to repeat, that a right knowledge of the art of shoeing will always be found to consist rather in the judicious application of all, than in an obstinate adherence to any one form of shoe with which the ingenuity of man has furnished us. Some of the older veterinary writers have made this remark long since. Osmer has observed, that "no particular method of shoeing whatever can take place. And this will happen from the different nature, form, and texture of horses' feet. But the prejudices of mankind on all these occasions may be worth remarking. One man invents a piece of machinery, which he finds to be very useful in many respects. His pride and vanity would fain have it extend to all purposes. In this light he recommends it to his neighbour, who tries it, and, having found it not answer his particular purpose, he falls into the opposite, and declares it good for nothing. Hence, that which may contain many virtues, when used with judgement, becomes neglected, and is, perhaps, totally thrown aside, and hence the perfection of some arts is less extensive." Another of these older authors, Mr. John Clark, of Edinburgh, who has also written very sensibly on the subject of shoeing, says, "But it is extremely difficult to lay down fixed rules with respect to the proper method to be observed in treating the hoofs of different horses. This will be obvious to every judicious practitioner, from the various contractions of their feet, from disease, and other causes that may occur. So that a great deal must always depend upon the judgment and discretion of the operator," &c.

Perhaps in England, as relates to shoeing, we are not sufficiently minute in our classification of feet. We are apt to say generally, *strong feet* and *weak feet*, or *flat feet* and *upright feet*. Our neighbours the French have been far more discriminating in this respect. Professor Girard, in his excellent and scientific treatise on the feet of domestic animals, has enumerated not less than twenty-one varieties, either of form and character, or so many different defects and deformities, commonly to be met with in the feet of horses; some of which are to be remedied by shoeing, whilst others either impair the foot permanently, or render it unfit for much service.

Although M. Girard's arrangement may appear somewhat prolix, yet, as it is the only attempt of the kind that I know of, and as it is intimately connected with shoeing, I shall take leave here briefly to recapitulate it.

1. The large foot (*pied grand*) } Feet of the same character, but in different states.
2. The flat foot (*pied plat*) }
3. The convex foot (*pied comble*) }

4. The small foot (*pied pétit*)
5. *Pied encastelé* } Varieties of the contracted foot.
6. *Pied à talons serrés* } Varieties of the contracted foot.

{ Feet exhibiting an opposite character to the first three, and in different states.

7. The narrow foot—or one running to toe (*pied etroit*).
8. The ringy foot—the hoof growing in circles or rings (*pied cercle*).
9. The foot with high heels and concave sole (*pied creux et à talons hauts*).
10. The foot with low heels (*pied à talons bas*).
11. The foot with weak heels (*pied à talons foibles*).
12. The foot with a large frog (*pied à fourchette grasse*).
13. The foot with a small diminutive frog (*pied à fourchette maigre*).
14. The fleshy foot (*pied mou et gras par quelques uns*).
15. The foot with a thin crust and weak quarters (*pied foible*).
16. The foot with a brittle or broken crust (*pied dérobé*).
17. A foot somewhat curved upwards at the toe (*pied rampin*).
18. A foot with the toe turned inwards (*pied cagneux*).
19. A foot with the toe turned outwards (*pied panard*).
20. (*Pied de travers*), a crooked foot, having one quarter curled inwards.
21. (*Pied bot*), a club foot— a diseased state in which the coffin-bone has sunk from its relative situation in the horny box, the sequela of inflammation of the laminæ.

"A good and well-formed foot, the Professor observes, should be of a size and character proportioned to the rest of the body. The horn should at once be pliant and hard without being brittle. The surface of the hoof smooth, rather shining, and of a fibrous appearance, but free from wrinkles or depressions. The heels, sufficiently apart from each other, should also be of a certain height. The sole should present a slight hollow or concave surface, inclined towards the centre, so that the lower edge of the crust, or wall of the foot, may be upon a level with the base of the frog. And thus the point of contact can only take place upon those parts which form the circumference of the ground surface of the hoof. A horse, continues M. Girard, with such feet, and well made in other respects, will go with confidence upon all kinds of roads; will work and live equally well in wet or dry situations; will be easy to shoe; and his shoes, if well attached, will remain on firm until they are entirely worn out."

To which I may add, that a horse with such feet will perhaps go equally well in any kind of shoe; that is to say, as long as his feet remain in this state. But it is still a question, which, of all the modes of shoeing hitherto proposed, may be the best means of preserving the feet in this perfect state. For this de-

sirable end, Mr. Coleman would probably recommend the frog shoe; Mr. Bracy Clark, no doubt, the hinge-toed shoe; Mr. Goodwin says the curve-toed shoe and French nailing: while Mr. Turner insists upon it, that the one-side nailing would be the only means of keeping the foot in a state of perfection. It must, however, be confessed, that we sometimes see feet of the finest form and appearance, nay, I may say, often changing their character in spite of any system of shoeing. Colts feet, that seemed to be every thing one could wish at the first shoeing, I have seen change in an extraordinary way after a few months stabling, and that under the most careful shoeing. Persons who have been much in the habit of seeing horses used from the commencement, must have observed (that is, if they take any notice at all) many hoofs, which in the colt and in the first few shoeings appeared *perfectly firm and good,* assuming, in a short time after stabling, a weak and brittle character, becoming more or less elongated, or presenting some other change: and this I say will sometimes happen, not only under any one particular system of shoeing, but even under the most skilfully varied treatment that we can devise. On all occasions we are apt to censure the farrier for spoiling the horse's foot; and certainly he often is, but not always, to blame for this mischief. We ought to recollect that shoeing is only, at best, a partial good: without it the horse would be almost useless to man; but with regard to the foot of the animal itself, *it is a positive evil,* applied in any form. The best mode of shoeing may, therefore, be said to be that which does the least injury to the foot, or that which has the greatest tendency to preserve it in its natural state.

Wherever I find strong feet, with high heels, such as have the greatest tendency to contraction, I have adopted a shoe for common use very much upon Mr. Goodwin's principle, which, by being hammered gradually thinner from its outer to its inner rim, presents a concave surface on the ground side; an arrangement which at once gives it lightness, affords it a firmer hold upon the ground, and is in accordance with the natural form of the hoof. Its upper surface or foot side is flat, except at the heels, where it presents an inclined plane outwards, a form favouring the lateral expansion of the heels of the hoof. It is attached by means of seven nails, of which three only are placed along the inner portion of the hoof, and kept at a distance from the heel, in order to leave that quarter as free and unfettered as possible. This mode of shoeing when well executed, the shoe well made, properly fitted, and attached in this way, will not only prevent contraction of the hoof from going on, but in many instances it will be found to be a good means of removing it.

Nails, it may be observed, are a necessary evil in shoeing.

They have always a tendency more or less to *bind and split* the hoof; the fewer, therefore, that we make use of, and the greater distance we keep them from the heels, the better; provided they fulfil their intention, which is to keep the shoe firmly attached to the hoof: but every attempt to invent a shoe which could be fixed on the foot without nails, so as to answer any general or useful purpose, has hitherto been unsuccessful. Mr. Bracy Clark and others have exerted much ingenuity in efforts to attain this desirable object, but to little or no purpose; and perhaps it is beyond the art of man. Mr. Percivall's *Horse Sandal* is a very pretty contrivance, and may be useful in many situations, but it is not a horseshoe. Nails are, therefore, I say, a necessary evil; but the fewer perhaps we use the better, and their arrangement is a matter of some importance.

Every nail that enters the hoof is to be regarded more or less as a wedge driven into wood, having a tendency to break and split it. Some hoofs, like some pieces of wood, are certainly much more difficult to rive than others; but the more numerous our wedges, and the closer we drive them, the more certain we are of splitting and breaking both the one and the other. The common practice with us in the British Isles has always been to drive the nail along the centre of the crust or outer wall of the foot, and as high as possible, in order to take a good hold; a method of driving the nail, it must be confessed, which gives it, as a wedge, its fullest force, and is often very destructive to the outer shell of the hoof. The French mode of nailing is much less objectionable in this respect: their nail-holes being punched much coarser, and with a direction outwards, the nails only traverse the crust obliquely; taking a short but at the same time a strong hold of it. This method certainly breaks and injures the hoof much less than that in common practice amongst us; but it also has its objectionable points, as I have before observed. It should, at first especially, be put in execution very carefully, else some of the nails will be apt to make sideway pressure against the sole, and thus be the cause of lameness.

It may not, perhaps, signify much, whether the nail-holes be simply stamped, or punched through what is called a fullering; in both their direction may be the same, that is, slightly slanting outwards. Their degree of hold or distance from the outer rim of the shoe must depend very much on the perfect or broken state of the horny box. But in no instance are the nails to enter beyond the white rim which marks the line of junction between the horny sole and bottom of the crust. If this system of nailing be carefully practised at first, and steadily persevered in, its advantages will be apparent.

In putting this plan of nailing into execution, it is necessary

to get a firm and sufficient hold; and the lower part of the crust should be allowed to grow as strong and thick as possible, which, it may be observed, it is never likely to do under a system that is continually splitting and breaking it.

Rasping the hoof, with a view to give it a neat appearance on new shoeing, is, I am convinced, productive of much mischief to the crust, tending to weaken it, to make it thin and shelly, and consequently more easily split and broken by the nails.

Shoeing smiths, with the idea of making their work look well to the eye, are in the habit of using not only the rasp, but also the drawing knife, a great deal too much. The frog is so easy to cut, that they cannot resist the temptation, and, when left to themselves, they generally pare it unmercifully; but what is still worse, is the practice of what they call opening the heels, that is, of removing at once both the horny bars and inner corners of the hoof with the drawing knife; and this, for *the time being*, certainly does make the heels look a little more open, but it is like taking away the corner stone of a building, or a buttress placed as a prop of support. It only makes room for the heels to fall in, or contract still more and more: and when, in addition to this, we see a shoe applied, presenting an uniformly concave surface on the *foot side*, which consequently must have a tendency to bear the heels inwards at every step the animal takes upon the ground, how can we be surprised at contraction of the foot taking place? or that, in some instances, it should go on so rapidly?

In conclusion I may observe, with regard to the particular form of shoe of which I have been speaking in terms of commendation, viz. one made with a flat surface on its foot side, but presenting a bearing towards its lateral extremities, calculated to throw the heels of the hoof outward, that it is a shoe only fit for a certain class of feet—strong hoofs, with high heels, and a concave sole. Its application to weak feet, with low heels and flat soles, would be highly improper, because such a formed shoe would inevitably rest upon the sole, and thus outrage the first principle of shoeing. For such feet the *seated shoe* is unquestionably the best form for general use; and this brings me back to my first position, the position with which I set out, viz. that there is no one single form of horseshoe ever yet invented, or perhaps that ever will be invented, equally suited to all kinds of feet. And the necessary induction—"that the art of shoeing will always be found to consist more in the judicious application of all, than in the most dexterous execution of any one particular plan."

THE VETERINARIAN, OCTOBER 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

The present month, by the medical world in general, by the schools more especially, is regarded as the first of a new medical year: and it is a season well suited for the commencement of medical studies. The summer's heats begin now to give place to the cooling breezes of autumn; our enemies, the flies, to relax in their importunities, as well as diminish in their numbers; and the weather and temperature to become such as to incline us to bear confinement and exert our mental powers better than we could probably have done in any intervening month between the cessation and re-commencement of medical term-time. Why our veterinary class of students should not assemble at the same time that the medical classes do in the metropolis, is to us inexplicable: we can assign very potent reasons why they should do so, and such as seem to us to be of weight enough to bear down every counter-consideration.

The students at our College are enjoined to attend the "lectures in town"—the lectures on anatomy, physiology, surgery, medicine, chemistry, materia medica, and botany—which commence, most of them, the first or second day of October;—all of them within the month. Whereas, woful to add! the lectures at the Royal Veterinary College do not have their beginning before the second or even third week of *November*; before which protracted day the pupils in general not arriving, the consequence is, that, of the several lectures they are expected and required to attend in London, almost one-half of the first course is passed over and lost to them. This is a sad misfortune to a young man intending to pass only one year at the College—nay, may turn out an irretrievable one, should it happen (as it generally does) that only a half or even a third of the class can attend the same course of the town lectures; the numbers being too great to find room for all upon the eleemosynary benches.

Among other disadvantages the veterinary student labours under, this is one that can be removed without any great sacrifice on the part of the Professors; and it is one that ought at once

to be rectified. The lectures at the Veterinary College should commence at the same time that the metropolitan medical lectures begin; an arrangement that would give the student not only every advantage of those lectures, but would enable him to complete his more arduous duties—his dissections and demonstrations—in the course of the winter season; and fit him, by the month of May or June, to leave the confined atmosphere of the lecture and dissecting-room either for professional practice or relaxation in the country.

Advancing so rapidly and spreading so widely as every branch of knowledge and education is in this country, it behoves us to look narrowly "at home," and watch if our own house is kept in the same order and state of improvement as those of our neighbours. Unless we keep pace with them in knowledge, we shall retrograde twofold—ay, twofold in every other respect.

"Scientia est potentia."

To us indeed it is power—veritable power; the only front we can put on to look that man full in the face who denounces us all as a race of "horse-doctors." No matter, however, whether we be horse-doctors or pig-doctors, so that we possess that through which we can at any time hold most persuasive arguments with our "superiors," that we are not vastly beneath them in *mental* worth, however much higher we may palpably stand opposed to them in our professional liberalism, one to another. Let us cast away from us that bugbear that assails us under the imposing garb of *respectability*. Let us call persons, as well as things, by their right name; and look upon him only as truly respectable whose knowledge amounts to power, and whose moral worth is such as "all men must approve of."

To enter, at the present day, on a residence in a country-town, and find the physician above the apothecary, the rector above his curate, and the magistrate and banker, perhaps, above them all, is so truly ridiculous and disgusting, that a man of sound sense and independence can only measure his happiness by the distance he can keep out of such incongruous society. We know a locality, not a hundred miles from London, where, on the occasion of a subscription ball being got up, the general practitioner (a most respectable surgeon) was refused a ticket of admission

because he was *considered* "to keep a shop:" and so he did—a pharmacy, in which his assistant compounded his prescriptions. Another instance came to our knowledge, in which a rope was actually extended through the middle of the ball-room, in order to dissociate those who kept *no* shops from the unhallowed touch of the *profanum vulgus.* We wonder on which side of the said rope the Vet. would have found himself; probably on neither:—a *blacksmith*'s forge must most indubitably have qualified him for no higher a berth than the sooty region of the coal-hole.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

The Anatomy of the Horse, embracing the Structure of the Foot. By William Percivall, M. R. C. S., Veterinary Surgeon in the First Life Guards; Author of "Lectures on the Veterinary Art," and Co-Editor of "The Veterinarian."

That veterinary science has rapidly progressed within the last few years, is a fact that admits of no dispute. A profession too long undervalued, and almost systematically degraded, is beginning to assert its claim to consideration; and that claim, willingly, by the man of enlarged and liberal views; and reluctantly, yet even more triumphantly, where bigotry and jealousy oppose, is now admitted in the scientific and medical world. Among the means that will ensure its future progress, the most efficacious and valuable are the improvements that have taken place in veterinary education. Twenty years ago there was not an elementary book in the English language to which the student could satisfactorily have recourse; but now, although his aids are few, they are valuable and effectual: and with Blaine, and Percivall, and Goodwin, and Peall, and Clark for his guides, and last, and not least, the information which he may derive from the contributions of many a writer in the pages of The Veterinarian, it will be his own fault if he become not a well-grounded and successful practitioner.

For the last two years, however, the newly-entered veterinary student has complained. Mr. Blaine, in order that he might record, in his last most valuable edition of the "Veterinary Outlines," the recent improvements that had been made in veterinary surgery, was compelled to abbreviate the anatomical detail; and the first and second volumes of Mr. Percivall's Lectures, con-

taining the whole anatomy of the osseous and muscular and respiratory and digestive and absorbent systems, were out of print, and there was no dissecting room with a competent and *officiating* demonstrator where the chasm in his elementary education could be filled. The snatches of Mr. Percivall's forthcoming and complete "Anatomy of the Horse," which occasionally appeared in THE VETERINARIAN, only rendered him more desirous to be put in possession of the advantages which it promised him in the pursuits of his anatomical researches. At length, after hope had been somewhat too long deferred, the promised work has appeared. The present volume is necessarily grounded upon, but it is not a repetition of, the anatomical portion of Mr. P.'s "Elementary Lectures." He has evidently and carefully travelled over the ground afresh. The descriptions of the different parts, although essentially the same, are more graphic; and they more readily supply the wants, and are more deeply impressed upon the memory of the student, by the divisions into which they are thrown. The tyro will, perhaps, follow with some difficulty a lengthened and complicated description of a certain muscle—to take that by way of illustration—and, after all, the impression or figure of the part upon his mind will not be distinct and prominent; it will be an isolated, comparatively uninteresting, useless thing: but when the situation is first described, and then the general outline or form of the muscle, its peculiar structure; then its attachments, its origin, and its insertion, as they are usually called; and next, its connexion or relation, with every surrounding part of every kind; and last of all, its action, direct or indirect, simple or combined: when all this is laid before him, his knowledge of the part is complete and permanent, and readily convertible to every point of physiology and surgery, and the nature and treatment of disease. This arrangement is applied to every viscus, thoracic and abdominal, and, in fact, to every part of the frame; and, next to the accuracy of the description, constitutes much of the value of the work.

As the author passes along, he notices the discoveries which have been made respecting certain systems, since the publication of his "Elementary Lectures." This is particularly observable with regard to the *sensitive system;* in which the luminous theory of Sir Charles Bell, with regard to the functions of the nerves, is briefly, but satisfactorily, stated. The *auditory system*, and principally from the pen of Mr. Simpson (not Mr. Smith, as erroneously printed), is new, and ingeniously described. The *plantar system*—the history of the structure and functions of the foot—is also new, and exceedingly valuable. Although it necessarily consists at present of little more than anatomical

detail, there are occasional glimpses of physiological views, perfectly original, and of the highest importance.

One instance, although a minor one, may be selected. Mr. Percivall is describing *the sensitive laminæ or lamellæ.* "The cuticular covering of the coronary substance having descended upon the coffin-bone, the circumference of which is less than that of the coronet, becomes thereupon gathered into numerous little plaits or folds, which proceed in slanting parallel lines down the wall of the bone."

"Every lamina consists of one entire plait or duplication of substance, having its *inward sides* intimately and inseparably united; its *outward sides* being the surfaces of attachment for the horny laminæ." "Its nature is extremely dense, and it possesses extraordinary toughness and tenacity. Veterinary writers and lecturers have endowed the laminæ with a high degree of elasticity; but it appears to me that the property is referrible to their connexions, and not one that is inherent in their own substance."

"*Elastic structure.*—This is a substratum of a fibrous periosteum-like texture, attaching the laminæ to the coffin-bone, in which it is that the property of elasticity resides to that remarkable extent usually ascribed to the laminæ themselves; indeed, so elastic is it found to be, that it can be made to stretch and recede the same as a piece of Indian rubber."

How simple and perfect a view of the elasticity of the foot is here presented!—no longer the five hundred and odd little springs, not one of which could by possibility be a spring; for at every point it was tied down by its supposed surface of elongation to the horny laminæ, which could scarcely elongate at all. If I am to depend on the elasticity and play of a spring, I must give it room to play; if I attach it on either side to unyielding materials, I may as well not have it at all.

The connexion between the sensitive and horny laminæ is admirably yet also simply contrived, to give the most extensive as well as the strongest surface of attachment and support, and sufficient to counteract the greatest force that can be brought to bear upon it; but the elasticity of the foot depends on the interposed substance between the crust and the coffin-bone, and which has room to elongate and to act as a spring when the coffin-bone descends.

The object of this review, however, is to announce the publication of "The Anatomy of the Horse." The benefit which the student will derive from it when he makes it his companion in the dissecting-room; and the ease and satisfaction with which the practitioner will refresh his memory on many an important but half-forgotten point, will constitute its best praise. A know-

ledge of anatomy and physiology lies at the foundation of all good practice, and no really useful *veterinary* learning can be acquired without them; our young students cannot be too deeply impressed with this truth. They may depend upon it that this is "the only effective weapon by which they will be enabled to combat their opponents"—the groom, the blacksmith; nay, in the present state of our art, in too many cases, the man of education and the surgeon.

Mr. Percivall's "Elementary Lectures" combined the anatomy and physiology and pathology of the horse. This volume contains the first of these—the foundation of the other two. If the reader will be disappointed in any thing, it will be, that the able author of this work has given no distinct pledge of his intention to rear the proper superstructure upon the foundation here so firmly laid. There is, however, a tacit obligation, the force of which he will neither forget nor evade.—Another short quotation from his Introduction will combine his duty, as well as that of the veterinary students and the lovers of the horse, who are already so much indebted to him. "By learning anatomy we become acquainted with the situation, form, connexion, and structure of every part of the body. Its action or use is taught by the science of physiology: from which we proceed to the third link in the crane of fundamental medical knowledge—pathology, or the doctrine of disease. Anatomy prepares the mind for, while it excites it to, the study of physiology; a science no less admired for the sublimity of its dogmas, than ardently pursued for its fruitful and valuable products. Anatomy forms the groundwork of physiology; and he who possesses a knowledge of both sciences combined, holds in his hand the key to all rational practice, as well in medicine as in surgery, be it human or be it veterinary."

W. Y.

Remarks on the Condition of Hunters, &c. By Nimrod.

[Continued from page 539]

To whatever extent we may concede the *practice* of the "art and mystery" of getting horses into condition into the hands of the groom, we must not lose sight of the *principles* upon which that practice is founded; but remember that they form "part and parcel" of the science of the veterinarian. No man can be deemed qualified to undertake the management of a horse in disease who is unacquainted with his nature and habits in a state of health. These have become so altered by our artificial treatment of the animal, that it requires a sort of servitude in the stable to get possession of such knowledge: nay, more, a man can hardly be said to "know a horse"—his habits, temper,

constitution, &c., until he has been often upon his back, as well as had opportunities of observing him in the stable. All such practical and useful information being obtainable only through actual observation and experience, accounts for its having been hitherto principally confined to the possession of grooms, who have thereby derived an advantage over professional men that must ever prove annoying, if not derogatory, to the latter. It is, however, quite in their power to guard against such annoyances, by making themselves equally well acquainted with "stable management;" the principles of which their minds are already furnished with; all that is further required being observation and experience to reduce them to practice. In the schools, principles precede practice: in the stable, practice not only precedes, but is too apt to supersede all principles. Our friend Nimrod discourses about "a sensible and rational groom;" but really such an animal has hardly, to our remembrance, crossed our path; we feeling inclined to hold that groom to be the best of his species, who, knowing well his peculiar handicraft, will implicitly follow the mandates and attend to the directions of his master.

The present work consists of a compilation of "letters," originally published in the Sporting Magazine, with the professed intention of exposing the errors of the custom of turning hunters out to grass at the conclusion of the hunting season, and there letting them remain until within six or eight weeks of its recommencement; an interval during which, according to our author, *at grass* they become deteriorated instead of benefitted, and reduced down to a state from which it takes double the time allowed to get them up into condition again. In place of this mode of reposing and refreshing the hunter, Nimrod's "system" consists in—

"Never to give a hunter what is called a 'summer's run at grass;' and, except under particular and very favourable circumstances, never to turn him out at all."

The evils arising from the old plan of proceeding, Nimrod judiciously considers "as regards the state of their bodies;" and "in reference to that of their legs and feet."

In respect to those befalling the body, according to our author, "the load of bad flesh he acquires in this state (turned out to grass, and *foul* too) may be termed a sort of 'oleaginous dropsy,' *the effect of a general atony of the absorbents, created by the immense quantity of succulent food he devours, and by the sudden stop put to the evacuations,* and other means resorted to when in regular work." Not even being "cleansed by physic," before they are turned out, "can prevent these evils."—"To say nothing of the accidents they are subject to when turned out." The disorders produced "by their being at liberty to

gorge themselves uncontrolled; and by their "being kept eight months in the year in a warm stable, and in an equal temperature, and the other four being exposed to the noontide heat and midnight cold." Hence, "blindness, and what is vulgarly and stupidly called 'a grass cough,' ending in broken-wind or roaring, are produced."

We have extracted the above passage, containing our author's own account of the evils occasioned to the body by a "summer's run at grass," for the practical facts contained therein, and not with any view of subscribing to the pathological ratiocination on them; that being, perhaps, rather "more in our line than in his." The evils complained of appear to arise principally from two causes;—from change of (and that to green) food, and from vicissitudes of temperature.

In regard to change of food, and that of a succulent and relaxing nature, from one of a dried, binding, and stimulating description, no doubt can be entertained that the body must, under such a modification of diet, undergo various alterations in its physical constitution: letting alone change of habits and temperature, this of itself is sufficient to lower the animal down to a state approaching to that of nature from the one he has been forced up to by the prepared provender of the stable. Nimrod, however, must be reminded, that the animal machine, no more than any machine the work of *man*'s hands, can "go for ever." A carriage, a watch, a steam-engine—all will wear out *in time:* the cogs of the wheels will grow round, from being square; the springs will grow weak; every part will gradually wear away, and diminish in force, rectitude, or efficiency of action, until the machine no longer performs its duty, or ceases going altogether. The way to preserve the machine is to require from it but moderate steady work; or, should we force it into extra action, to take care that that is not unduly long continued. We admit all that Nimrod asserts—"that a horse turned out to grass for the summer, and taken up full of *bad* flesh, the first week in August, cannot reasonably be expected to be in condition, and fit to go to hounds by the end of October, or the beginning of November."—"We think ourselves lucky if we can bring a racer to the post, fit to run, *in eight or twelve months;* but a hunter is to be made fit to follow the hounds *in as many weeks!*" This is all very true; but let us ask how long these horses are to *last*—to live in the enjoyment of their useful or valuable powers. How long does the modern racer endure, trained as he is at two or three years old, and worked on without intermission? Is it not now proverbial on the turf, that race-horses in general lose their speed and strength, and become comparatively valueless by the time they arrive at their sixth, or seventh, or eighth year? And are

we to pursue the same system—if not of premature use, at least of continued constitutional excitement—with our hunters? We hope and trust not. Nimrod, in our opinion, has got his eyes too firmly fixed upon the *temporary* inconveniences consequent on the old plan of the "summer's run," to discern the ultimate and not so very far distant result of the new "system" he is so desirous to introduce.

Extracts.

On spontaneous and partial Rupture of the Muscles in the Horse.

By F. J. J. Rigot.

Spontaneous and partial ruptures of the muscles of locomotion, although of rare discovery in the horse, yet would have been, I think, more frequently observed in this animal, if more diligent researches had been made into these kinds of affections.

The cases of which I am about to give a short account, and from which I shall endeavour to extract some useful results, were collected during the year 1825, from eight horses destined for anatomical purposes.

I shall not seek to determine what might have been the cause of these lesions, the probable circumstances under which they were effected, and the changes they produced: I shall content myself with narrating the facts as they presented themselves.

A draught horse, about ten years old, still vigorous, was brought to be given up for experiments or dissection. Having examined him to discover what were the causes which rendered him unfit for work, I became convinced, from the rigidity of the dorso-lombar column, the staggering action of the hinder limbs, and the difficulty of retrograde action, that he was affected with what is called *strain of the loins.*

At the post-mortem examination, I observed that the left sub-lumbo-trochantineus muscle (psoas magnus) was considerably increased in size, that its tissue was not so firm as in the natural state, and that its cellular fascia was red and infiltrated. Having completed this superficial examination, I cut into the muscle, and found in the interior of it numerous clots of black blood floating in a cavity, the sides of which were thin, and bristling with red filaments, which I am convinced were the softened extremities of the lacerated muscular fibres.

The articulations of the loins, and the muscles and neighbouring viscera, did not, in the slightest degree, participate in this alteration. The anxiety with which I sought for affections of this nature, shortly afterwards afforded me another opportunity

of studying similar lesions in the long flexor muscle of the head, the trachelo-suboccipitalis (rectus capitis anticus major); but I could not here, in examining the living animal, discover any symptom which could lead me to suspect their existence.

The lesions were exactly the same as those in the former case, and to describe them would be but a repetition of what I have said above. The following three cases are those of rupture of the scapulo-trochineus (subscapularis) muscle.

A very old horse was affected with a slight but not permanent lameness of the right fore leg, without any apparent cause: after he was destroyed, I observed some of the fibres of the right subscapulo-trochineus muscle (subscapularis) were lacerated, softened, and that the tissue of the neighbouring muscle presented some ecchymoses; the surrounding cellular tissue was injected by a very small quantity of blood, and much yellow serosity.

In another, a mare, affected with a permanent lameness of the anterior right leg, I found, on opening her, a transverse whitish very hard band (a perfect cicatrix), dividing the fleshy substance of the sub-scapular muscle into two parts at the bottom of the scapulo-humeral articulation. There were on the outside, on the anterior border of the muscle, near its insertion into the humerus, some reddish filaments firmly adhering to the muscular fibres, which made me imagine that the cicatrization that had commenced, had not yet extended through the whole of the ruptured portion of the muscle.

In the horse forming the subject of the fourth case, and which was lame of the anterior left leg, I found, between the insertion of the sub-scapular muscle and the bone, a bony tumour adhering to the humerus. The tissue of the muscle at this part appeared to be transformed into a white fibrous substance, in the midst of which were observed several calcareous granulations.

At the post-mortem examination of a mare that had been lame of the left hind leg without any perceptible cause, I found that the iliaco-trochantineus muscle (the iliacus), which I cut into, had a cavity in its interior containing several yellow masses of fibrinous filaments, which were nothing but blood divested of the colouring matter.

The parietes of this tumour were glistening, and covered with little rounded, abrupt, reddish eminences—perfect cellulo-vascular buds.

In the three last cases which I have collected, of interior lesions of the psoas magnus and superpubio femoralis (pectineus) muscles, the organic lesions were almost precisely the same; thus, in these three cases of lameness, so slight that I could not suspect such an appearance, the unnatural cavity in the interior of the muscle had smooth and yellow walls, enclosing a whitish flaky liquid,

without colour or smell. Some slender bands, which passed from one side of this tumour to the other, appeared to me to be nothing but the organized fibrine of some clots of blood originally extravasated there, as in the first case.

We see, from what I have narrated, that, following the part of the muscle where these ruptures were produced, we may divide these lesions into those which are external and those which are internal; and this division, which is not arbitrary, since it is founded on the simple observation of facts, appears to me to result from the different organization of the parts, the seat of these lesions. If we consult experience, we shall find that the slender muscles, which are destitute of that aponeurotic covering found in almost all the round and swelling ones, are always ruptured superficially; while in the others, the tendinous sheath, which adheres closely to the exterior fleshy fibres, opposes their laceration, and only suffers the rupture to take place in the deeper seated parts. I believe this division to be the more important, because, in exterior ruptures, the cure, though slow, may nevertheless be effected; while I consider the internal ruptures to be much less capable of cure, in proportion to the time that has elapsed after the accident.

Admitting for a moment that a muscle may be ruptured in its centre, the first effect would indubitably be a wound in the interior of that muscle. It is also clear that there could not be a rupture of this nature, without that of a great many of the capillary vessels and frequently of some very considerable branches. What then would be the result?—an effusion of blood into the cellular tissue which unites the fibres and the muscular fasciculi, as well as in the new unnatural space formed by the sudden retraction of the lacerated muscular fibres. This second effect would be the necessary consequence of the first. What would become of this blood?—would it become organized in the cavity containing it, as is often the case in effusions of this nature; or would it be again absorbed, as is quite as frequently observed? Both of these processes appear to unite in these kinds of lesions; for, as the former observations prove, these unnatural cysts contain either pure blood, or that which is coagulated and deprived of its colouring matter, and organized after the manner of false membranes.

If we are now asked how these ruptures are effected, since the contractile power with which the muscle is endowed is constantly opposing itself to the lesion of its fibres, we may reply, that the unnatural direction in which the muscles are sometimes made to act, the isolated contraction of a muscle which has many auxiliary ones, or when this muscular action is suddenly and involuntarily produced, may be causes of these lace-

rations; and to these may be added, the sudden and excessive elongation of a muscle, an antagonist to one called into action, the mechanical distention of a muscle by a stumble or false step, &c. &c. A burden, too heavy, placed on the loins, and pressing upon the inter-vertebral cartilaginous substance alone, and forcing the psoas muscles to remain in a permanent state of contraction, in order to support the loins, and to contribute, at the same time, to rapid and sometimes long-continued progression, may also be the cause of these lesions.

I have observed that the muscles which are most exposed to these lacerations have, in the horse, some peculiar physical characters:—the fibres which compose them are slender, long, and very soft. The cellular tissue which unites them is loose and fine: thus the iliac muscles, the long flexor muscle of the head, the psoas magnus, the sub-scapularis and pectineus, which exhibit this kind of texture, are ruptured with the greatest facility, and not unfrequently in the violent convulsions which take place at the moment of death, as I have many times observed in horses recently destroyed.

Without seeking to attach to such lesions all the sudden, obscure, permanent, or intermittent lamenesses of the horse, it seems reasonable to admit that some of the symptoms, the cause of which often remains unknown during the life of the animal, are attributable to these affections; and amongst them I am inclined also to place those cases of deep-seated abscess related by many veterinarians.

Medical Advice respecting some of the most frequent Diseases of the Teats of Cows.

A good cow may from accident become diseased in her udder, and useless; but it more frequently happens for want of care, oftener still from absurd treatment.

Some cows give no milk until after they have calved, while others before calving have their teats so full and swelled as to be painful. It is generally supposed that it is injurious to take more than just milk enough to ease the teats: this is a great error. A superabundance of milk is always painful, and the distention may bring on inflammation; or the cow, in lying down or rising too suddenly, may easily hurt such distended teats, which, already painful and disposed to inflammation, may ulcerate, and troublesome abscesses may form.

Nevertheless, the first milk being useful to the calf; seeing that, by its relaxing qualities, it facilitates the first evacuations, it should not be drawn away unless there be evident necessity for it.

Farmers too often over-feed their cows, particularly during the first few days after calving, in order to make them give more milk; and they obtain by this means a result precisely the contrary of that which they expect. A cow at the time of calving has always some fever during the first five or six days: too much food nourishes and augments this fever; and the fever dries up the milk. The fodder ought to be good, and administered in such quantities that the cow shall never be satiated and disgusted with her food. What she requires is good and dry litter; and to be able to breathe air neither too hot nor contaminated, but fresh and often renewed; I do not, however, mean a cold and chilly temperature. She should also be well dressed every day with the currycomb and brush. Thin gruel should be given to her slightly salted and lukewarm, three or four times a-day. All edible roots are proper, especially when cooked, or reduced to a clear pulp, and mixed with the water in which they were boiled. If they are only cut up, and given in a raw state in so large a quantity as to purge the beast, they diminish the quantity and injure the quality of the milk. After the eighth day, however, the animal may by degrees resume its ordinary food.

The next source of mischief is common and field mice, rats, weasels, toads, &c. which bite the teats or breathe upon them, or wet them with their urine. The teats become hard and painful; the milk spoiled: and according to old stories, foolishly repeated and as foolishly believed, there is witchcraft in the case.

Disease will sometimes occur without our being able to discover the cause. A current of cold air, or contusions arising from a fall, or from lying down, are most frequently the causes of inflammation of the teats.

Whatever be the cause, the two following things must be attempted:—First, to relieve the pain; secondly, to check the inflammation. In order to effect these objects, the diseased teat should be fomented with an infusion of elder-flower, rather more than lukewarm, and five or six times a-day, and for a quarter of an hour each time. To make this infusion, the water is first boiled, and then taken off the fire, and the elder-flowers are added, about two handfuls to the gallon of water: it is then covered up, and left to infuse. It is of great importance that the teat should be carefully wiped every time with a soft piece of linen, in order that it may not be left wet and cold.

It is also of consequence that all the milk should be drawn from the diseased teat every time it is bathed, and that with as little pulling of the teat as possible.

When the milk is not altered before it arrives in the reservoirs

of the teats, it is very much disposed to become so, and in a short time it is usually spoiled by means of the heat and disease of the parts. While the vessels of the teats act on the milk, and render it acid; the milk itself, thus turned, acts on the vessels, and irritates them: the distention of the vessels likewise causes a great deal of pain, and thus one evil augments the other. The milk thickens; the clots quickly harden, and cannot be got out; the apertures of the teats become closed, and loss of that teat ensues, even if we are so fortunate as to prevent the inflammation from extending to them all.

It must also be added, that the pain of the teat, when it arrives at a certain point, produces fever: this fever, in its turn, reacts on the nipple, and thus augments the inflammation; so, in this case, one evil increases the other.

It will easily be seen that it is always prudent and often necessary not to limit our cares to the diseased part only: we must diminish the food, and brush and dress the animal, in order to aid the perspiration. Then, to prevent the fever from weakening the beast, we must give mild green meat, and particularly roots, amongst which carrots, beet-root, and radishes, are most beneficial. She should also be made to drink frequently, and a little at a time.

That neutral salt which grocers sell under the name of Epsom salts, and English (Glauber's) salts, are very serviceable here. They have two advantages: they are easily given, and very soon act. A pound should be divided into eight parts, of which one should be given morning and night in gruel, or the animal's usual drink.

Shall I speak of the "unguentum populeum, and oil of laurel, and camphorated oil, and grease mixed with the ashes of vine leaves, and cream, and many other celebrated ointments?" All greasy applications stop up the pores of the skin, and quickly turn rancid, when thinly spread over a heated surface, and thus irritate and often produce ulceration and abscess.

"And the smoke of sugar, of old leather, of juniper-berries, or of wild thyme burned under the udder, or the vapour of vinegar poured on hot flints?" These must necessarily irritate a part already too much irritated, but they may be of service when the swellings are not inflammatory.

"And clay dissolved in vinegar?" Some persons esteem this to be a good discutient. Although clay (argillaceous earth) diminishes the strength of the vinegar, it will be prudent never to use it except mixed with water. Discutients can only be of service at the commencement and the termination of inflammation, and when it is not very intense. Where the inflammation is urgent, they augment it, and indurate the nipple.

"And mercurial ointment and volatile liniment?" These are excellent remedies in certain cases, of which a skilful veterinary surgeon is the best judge.

"And poultices of pounded hemlock, parsley, nightshade, red cabbage, &c.?" Some knowledge of medicine is necessary to be enabled to form an opinion of the utility of these remedies. Poultices are very difficult to fix on. They are sometimes hot and sometimes cold. But a suspensory of simple linen is often useful to support the weight of the enlarged udder.

"And bleeding from the thigh?" It can never be sufficiently copious to be useful. When bleeding is required, it ought to be performed on that part from which as much blood can be got as is required, and when it can be stopped at will; from the neck for example.

"And when it gets worse and worse, in spite of all that is done?" Let them send for a veterinary surgeon, and not a farrier or a shepherd. It must not, however, be let alone too long.

"And certain prayers, signs, and secrets?" I would not notice or reply to such absurd questions, but would turn my back on the inquirer.

Journal d'Agriculture du Departement de l'Ain, Septembre 1830.

Remarks on an Epizootic Pleuro-pneumonia in Hogs.

By M. Saussol.

During the summer of 1821, almost all the pigs round about Mazamet were attacked by a violent disease which spared neither age nor sex, fat nor lean. It was almost invariably mortal. The owners of these, and especially those who had experienced the greatest losses, sent for me to ask my advice. I opened several of the animals that had died, and sought with the most scrupulous attention the character and causes of the disease; and I was not long in discovering them, and happy enough to be able to arrest the fatal progress of the evil. I imagine that the loss which resulted from this disease may be calculated at about a fifth part out of every four hundred patients.

Refusal of solid food, great desire for liquids, general dulness, continual groaning, and seeking moist places, were the symptoms which first gave indications of the disease. Then followed burning heat of the skin; tenderness in the hypogastric region; hardness of the belly; dryness of the excrement; constipation; diminution of urine; then, difficulty of respiration; heaving of the flanks, particularly in fat animals; the mucous membranes were crimson; the eyes full of tears; the cough unfrequent and short. The animals did not lie down, and it was difficult to get

near them. The pulse, which could only be examined in those animals that were the most quiet, was full and hard. All these symptoms were manifested in the course of twelve hours. If the disease continued, the symptoms became much more alarming; rattling in the throat came on, the limbs were strangely stretched out, the animals began to stagger, they supported themselves against the wall, and only fell to die in a few moments afterwards. This was usually about the third day. In some of them death was preceded by violent convulsions of the extremities and of the face.

The causes appeared to me to be evident; I found them in the burning heat of the sun, in the dry channels of the brook, and where they no longer found wherewith to satisfy their extreme thirst, occasioned by the dryness of the plants on which they fed. In the evening, on their return from the fields, having been exposed during the whole of the day to a degree of heat, by which they were exhausted, they received their usual feed, and were immediately shut into their sties, having little or no ventilation; and where they remained until the following morning, tormented both by thirst and heat.

In more than twenty animals which were opened immediately after death, I found the following morbid appearances: the thoracic cavity was filled with a very clear bloody fluid; the lungs were very much inflamed, the pleuræ thickened, extremely inflamed, and injected; the diaphragm covered with black patches about the size of a franc piece; the mucous coat of the intestines slightly inflamed; the windpipe and the bronchial tubes full of a reddish froth; the brain covered with a reddish serosity. It was only in a very few animals that I found no hydrothorax, and particularly in those in whom convulsions had appeared before their death.

I advised all those who consulted me, to put into the sties troughs large enough to hold sufficient water for the hogs, and that water to be acidulated and nitrated, and mixed with a little rye-meal, and to renew it frequently; also not to send the animals out to the field while the weather continued so hot. I prescribed general baths, which they should take about half an hour before the evening feeding-time in the trenches destined for watering the meadows, and the water of which had been warmed by the heat of the sun. I bled them all from the tail; and ordered the sties to be kept very clean, and the doors to be replaced by hurdles during the night, in order to facilitate a free admission of fresh air. The food, which was usually composed of a mixture of potatoes, cabbage, and bran, was not given in so large quantities. I took away half the potatoes, and added let-

tuces and chicory, well cut up. The animals were let out for a little while in the evening after the sun was set. This treatment preserved many of the hogs, and I had very few deaths afterwards.

On the first attack of the disease, I tried to lower it by large bleedings, which I obtained by making a section of the inferior sacro-coccygean arteries and veins. When I did not obtain a depletion sufficiently abundant by this operation, I amputated the tail, and by that means I always attained my end. I gave them for drink a decoction of borage, mallows, and lettuces, which they eagerly drank, and took care to add to it a little vinegar or ryemeal. If it was possible, I had them put in a hot bath; I also inserted a seton covered with blistering ointment underneath the chest. If this treatment had not the effect of arresting the progress of the disease, I administered camphorated and laxative drinks; and if the symptoms did not then diminish, death was not far off: but their intensity frequently abated, and the termination was favourable. It is well known that the obstinate character of pigs requires that they should be held down before a drink can be administered to them. I wished to do so with some of these; but as soon as they were thrown on the ground, they died under our hands. I am certain that, if I had not thus thrown them, their existence would have been prolonged for twenty-four or thirty hours, and some of them would probably have recovered. This is a warning for all veterinarians, in similar cases, to limit themselves to such bleedings and drenching drinks as can be accomplished without much force.

Journal de Méd. Vét.

Sporting Department.

Doncaster, Wednesday, September 26th, 1832.

Two-year old Produce Stakes of 100 Sovereigns, each h. ft. colts 8 st. 5 lb. and fillies 8 st. 3 lb. Red House inn, 14 Subs.

Duke of Leeds' b. c. by Lottery, out of Rhodocantha 1
Mr. Houldsworth's ch. f. Fidelity, by Whisker 2
Hon. E. Petre's b. f. by Whisker, out of Matilda 3
Lord Kelbourne's ch. f. by Jock, out of Purity 4

7 to 4 agst. Rhodocantha, who made all the running, and won, by a good length, a severe race for the second place. The winner was very cleverly ridden by Templeman.

The Great St. Leger Stakes of 50 Sovereigns, each h ft, for three-year old colts 8 st. 6 lb. and fillies 8 st. 3 lb.; St. Leger Course, 72 Subs.

Mr. Gully's ch. c. Margrave, by Muley 1
Mr. R. Bulkley's b. c. Birdcatcher, by St. Patrick 2

The following also started, but were not placed:—Mr. Powlett's gr. f. by Figaro (J. Holmes); Mr. Skipsey's b. c. Physician (H. Edwards); Mr. Ed-

mundson's ch. c. Richmond (R. Johnson); Lord Kelbourne's b. c. Retainer (G. Nelson); Lord Sligo's ch. c. Daxon (Pavis); Mr. Houldsworth's b. c. David (Darling); Lord Cleverland's ch. c. Trustee (J. Day); Mr. Ridsdale's b. c. Brother to Maria (Mr. Scott); Mr. Richardson's b. c. Fang (Conelly); Mr. S. Fox's br. c. Julius (Templeman); Lord Exeter's b. c. Byzantium (Arnull); Mr. W. Scott's b.c. Carlton (Garbutt); Mr. Watt's br. f. Nitocris (Nicholson); Lord Langford's b. c. Roue (Pavis); Mr. Bond's b. c. Ludlow (Wright).

After the horses had taken the usual gallop before the stand, they met at the starting-post, and at the word "go," all went off except Ludlow, Physician, and Fang: the second attempt was successful, and was admirably managed. Roue made first running, Mr. Powlett's filly second, Carlton third, and Birdcatcher fourth; Trustee, Fang, Retainer, Margrave, Julius, lying in a cluster behind. Going a very poor pace, they observed this order of running to the Red House, where some shifting of places and an increase of speed were perceptible. Roue dropped off, and Mr. Powlett's filly went to the fore; Birdcatcher became second, Julius shewed in front for a second, Margrave from about eighth advanced to the fourth position, and Physician got amongst the leading horses. In a fast-run race the tailing generally begins at the Red House; but the pace was so bad, that none were beaten off till near the rails, where Ludlow was the first to cry *pecavi;* the crack Newmarket nag Byzantium was the next to give up; and then Carlton. To return to the Red House: Mr. Powlett's filly kept the lead to the rails, when Birdcatcher came up, ran a few strides with her, and beat her at the distance. In the meantime Margrave, who was ridden with extraordinary talent by Robinson, had been stealing upon them; and no sooner had Birdcatcher shaken off the mare, than he discovered a new and more dangerous opponent at his side. Calloway was slashing his horse, while Robinson was gently moving his until he got up with Birdcatcher: this took place near the grand stand; and now the superiority of jockeyship was decisive. Margrave continued to improve his advantage, and won cleverly by about three quarters of a length. Mr. Powlett's filly and Physician came in close together, the filly being third by not more than a head. Richmond was fifth, Retainer sixth, and Julius seventh. As was before observed, the pace was wretched till after the Red House, when it increased, and at the rails was very strong.

Thursday Night.

The racing came off as follows:

The Gascoigne Stakes of 100 sovs. each, 30 ft. for 3 year-old colts, 8 st. 6 lb.; fillies, 8 st. 3 lb. The winner of the St. Leger to carry 4 st. extra. St. Leger Course, 11 Subscribers.

Mr. Gully's ch. c. Margrave, by Muley 1
Mr. S. Fox's br. c. Julius, by Jerry 2

5 to 1 on Margrave—won cleverly.

Two-year-old Stakes of 20 sovs. each. Colts, 8 st. 5 lb.; fillies, 8 st. 2 lb. P. Y. C. 31 Subscribers.

Mr. Watt's ch. c. Belshazzar, by Blacklock 1
Hon. E. Petre's b. c. by Phantom out of My Lady 2

5 to 2 against Belshazzar (taken); 7 to 1 against My Lady. Belshazzar won by about a neck.

The Gold Cup, value 100 sovs. added to a Sweepstakes of 10 sovs. each: 3 yrs. 7 st.; 4 yrs. 8 st. 3 lb.; 5 yrs. 8 st. 10 lb.; 6 yrs. and aged, 9 st. About 2 miles 5 furlongs. 13 Subscribers.

Mr. Riddell's black colt, Gallopade, 4 years 1
Mr. Brandsworth's b. c. Colwick, 4 years 2

5 to 2 agst. Gallopade; 5 to 1 agst. Colwick. Colwick had no chance of winning in the end. The race was won by nearly two lengths.

Sweepstakes of 200 sovs. each, h. ft. for 3 year-old colts, 8 st. 6 lb.; fillies, 8 st. 3 lb. St. Leger Course. 13 Subscribers.

Mr. Brandsworth's br. c. Wolverhampton 1
Mr. Ridsdale's brother to Maria..... 2

Match 100 sovs. each p. p. gentlemen riders, St. Leger course.

Mr. Hopkinson's b. c. Napoleon le Grand, 3 years, 10 st. 11 lb..... 1
Mr. Osbaldeston's b. g. Bilberry, 6 yrs. 12 st. 6 lb. 2

7 to 4 on Napoleon, who won in a canter, ridden by Kent. The loser by the Owner.

Mr. Osbaldeston has purchased the Saddler, Tutor, 2 yrs. and Lady Elizabeth, for 3500 gs. The Saddler was backed heavily for the cup, and was to have started: but on going into the stable this morning, one of his legs was found very much swollen, from an injury, of which the cause is as yet undiscovered.

ODDS ON THE ST. LEGER.

	Aug. 29th	30th	Sept. 3d	6th	10th	13th	14th	19th	20th
Lord Kelburne's Retainer ..	7 to 1	7 to 1	6 to 1	5½ to 1	5 to 1	5 to 1	5 to 1	6 to 1	5 to 2
Mr. Watts' Nicotus	7 to 1	8 to 1	7 to 1	10 to 1	7½ to 1	11 to 1	4½ to 1	15 to 1	15 to 1
Mr. Gully's Margrave.....	9 to 1	8 to 1	8 to 1	7 to 1	7 to 1	12 to 1	16 to 1	10 to 1	8 to 1
Mr. Beardsworth's Ludlow ..	15 to 1	12 to 1	13 to 1	13 to 1	15 to 1	15 to 1	20 to 1	16 to 1	20 to 1
Mr. Richardson's Fang.....	15 to 1	—	12 to 1	12 to 1	8 to 1	8 to 1	7 to 1	5 to 1	9 to 1
Mr. Fox's Julius	—	12 to 1	13 to 1	12 to 1	12 to 1	12 to 1	16 to 1	17 to 1	20 to 1
Lord Cleveland's Trustee....	—	14 to 1	14 to 1	20 to 1	14 to 1	15 to 1	14 to 1	12 to 1	16 to 1
Mr. Ridsdale's Brother to Maria	—	14 to 1	12 to 1	9 to 1	11 to 1	10 to 1	8 to 1	6 to 1	8 to 1
Sir R. Bulkeley's Birdcatcher	—	14 to 1	13 to 1	13 to 1	13 to 1	12 to 1	12 to 1	12 to 1	10 to 1
Lord Exeter's Beiram	—	20 to 1	20 to 1	20 to 1	Will not go.				
——— Byzantium	—	20 to 1	16 to 1	15 to 1	13 to 1	14 to 1	14 to 1	14 to 1	10 to 1
Mr. Vansittart's Perion	—	20 to 1	25 to 1	—	—	—	—	—	—
Lord Sligo's Daxon	—	25 to 1	—	27 to 1	36 to 1	30 to 1	—	—	—
Mr. Poulett's Filly	—	30 to 1	—	40 to 1	—	40 to 1	—	—	—
Mr. Chifney's Emiliana	—	—	40 to 1	40 to 1	45 to 1	40 to 1	—	—	—
Mr. Skipsey's Physician	—	—	—	—	20 to 1	16 to 1	16 to 1	14 to 1	15 to 1

THE

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A SERIES OF ESSAYS ON THE BLOOD, BLOOD-VESSELS, AND ABSORBENTS.

By Mr. R. Vines, *V.S., Royal Veterinary College.*

No. IV.

On the immediate Communication of the Lymphatic Vessels with the Arterial.

In the last Number of "The Veterinarian," after having endeavoured to shew that there was still some room for us veteterinarians to institute a *further inquiry* into the *nature* and *functions* of absorbent vessels, *the process of absorption, &c.;* and after having given an outline of some of the different opinions which have been advanced on this important subject, I stated, that from the time of Mr. J. Hunter to the present, and more particularly in this country, it had been held and taught as a generally received theory, that, in the living body there were three orders of vessels, viz. *arteries, veins,* and *absorbents;* and that it had only of late been admitted, that the lymphatic vessels not only took their origin from surfaces, &c. but from the extreme branches of the arteries, as had previously been asserted by Nuck, Cowper, &c.; and as a further proof of this, I introduced some important cases which occurred in the College about the period that I first became acquainted with the fact that the second class of lacteals were capable of receiving red blood from the arterial vessels, and, at the same time, becoming considerably enlarged in their size, so as to assume a character similar to that of the *real veins.*

At the time when these cases fell under my observation, I was not aware that it had already been recorded as a fact, that the lymphatic vessels were capable of receiving red blood from the extreme branches of the arterial ones; but, soon afterwards, as I was perusing Magendie's Physiology, I found, to my great surprise, that this fact was there recorded in the following words:—"In animals dead in consequence of pulmonary or abdominal hemorrhage, Mascagni found the lymphatics of the

lungs and of the peritoneum gorged with blood. He concluded from this, that these vessels had absorbed the fluid by which they were filled: but I have often found, both in animals and in man, lymphatics distended with blood, in cases in which there had been no effusion of that fluid; and besides, there is, in certain cases, so little difference between the *lymph* and the *blood,* that they cannot be easily distinguished." In another place he observes, "Whence, then, comes the fluid that is found in the lymphatic vessels? or, in other terms, what is the real or probable origin of the lymph? In considering, first, the nature of the lymph, which has the greatest analogy with the blood; secondly, the communication demonstrated by anatomy between the termination of the arteries and the radicles of the lymphatics; thirdly, the facility and quickness with which colouring or saline substances introduce themselves into the lymphatic vessels, it becomes, in my opinion, very probable, that the lymph is a part of the blood, which, in place of returning to the heart by the veins, follows the course of the lymphatic vessels*." Magendie immediately remarks, that "this is by no means a new idea, but nearly the same as that of the anatomists who first discovered the lymphatic vessels, and who supposed that these vessels were intended to carry back to the heart a part of the serum of the blood."

Our countryman, the late Mr. Cruikshank, has also noticed the fact of the lymphatic vessels being frequently found to contain red blood in animals dying from inflammation of the lungs, peritoneal inflammation, strangulation, and other violent deaths; these vessels were discovered to be turgid with blood, without the least appearance of the extravasation of this fluid into the cellular membrane.

From the extracts which I have quoted from Magendie, it appears that this physiologist considers the red blood so often found in the lymphatic vessels to be transmitted from the minute terminations of the seriferous arteries into the extreme radicles of the lymphatics; and in this view of the subject I perfectly accord with him.

Having, I am afraid, departed a little too far from my subject, in relating what has already been advanced by authors, I shall return to what has occurred under my own observation.

From having at that time an important subject already under investigation, viz. the varied changes which might occur in the second class of lacteal vessels, I was induced to attend also very minutely to the different changes which might take place in the

* Page 317, 323.

lymphatics: accordingly, as before stated, I diligently visited the various slaughter-houses, and soon found that the fact, as regards the lymphatic vessels receiving red blood from the extreme branches of the arterial ones, was of much more frequent occurrence than I could have supposed; and I observed it to take place more particularly in those parts of the lymphatic system which were the *nearest to the centre of the circulation;* and, in every instance, the thoracic duct was found to contain a fluid of a similar nature.

What I have now stated occurred not only in those horses which were destroyed or died in consequence of chronic affections, but also in those that died from acute inflammatory diseases; and likewise in others that were destroyed while the whole vascular system was in a state of high excitement, and in which there was not any particular internal disease present.

I also found, that the red fluid in the lymphatic vessels and the thoracic duct varied its *red colour* precisely in proportion to the previous strength of the animal. In some very weak and debilitated subjects, and in which the circulation was quick and weak, the lymphatic fluid was merely *slightly tinged with red;* while, on the other hand, in all those in whom the circulation was strong and vigorous, the lymphatic fluid bore a character similar to that of the *dark red venous blood.* I also found the appearances already described, not only in the lymphatic system of horses which died while under a high degree of excitation, but likewise in many of those which were, sometime previous to death, *exposed to wet and cold,* and allowed only a very limited portion of food; and this existed *both with and without* the second class of lacteals containing any red fluid, and when the circulation was *diminished,* as well as when it was *increased.* I shall not now attempt to give an explanation of the nature and cause of this singular appearance of the lymphatic fluid, but shall defer it until I state my opinion with regard to the real nature and properties of the *blood, lymph, chyle, &c.* I shall, therefore, at present, only add, that Magendie has seen a similar occurrence in the lymphatic fluid of dogs, when destroyed after long fasting. His statement is as follows: "The lymph becomes redder in dogs, according as abstinence is of longer continuance. In some that had fasted eight days, I have seen it nearly of *the colour of blood**."

* "Magendie's Physiology," p. 325.

The Nature and Functions of the Lacteal and Lymphatic Absorbents.

After having endeavoured to give a short outline of the various opinions which have, from time to time, been advanced with regard to the nature and functions of those vessels commonly called *lacteal and lymphatic absorbents,* I shall, in the next place, endeavour to point out what I consider to be their *real nature* and *use.*

It has already been stated, that the anatomists who first discovered the lacteal and lymphatic vessels conceived them to be only a set of serous veins, taking their immediate origin from, or being a continuation of the minutest terminations of the serous arteries; that the *lacteals* arose also from the inner surface of the intestines; and that the use of these two orders of vessels was, for the purpose of absorbing the chyle, and also to receive the transparent, and refuse the red or *coarser* part of the blood*;

* "Every artery in the human body," says Boerhaave, "is larger than any branch that it emits, as we are assured by our senses, so long as the eye or microscope can trace them; and it is, doubtless, the same in those exceeding small arteries, whose minuteness and pellucidity conceal them from the eye, both naked or armed. But the particles of the contained fluid will be always in proportion to the diameter of their canals, so that if a small artery, admitting only single red globules, is ramified, all its branches will be less than those globules, which they therefore will not receive, but they will admit those parts of the blood which are less than the red globules, or which are proportionable to their diameters, while the larger red particles will pass on into the red or sanguiferous vein. But the next lesser parts of the blood, to the red globules, are the yellow serous ones; and therefore the lateral branches of the smallest sanguiferous arteries will be filled with serous globules, and constitute a second order of vessels, viz. serous ones. That there are such serous vessels is proved by the microscope, injections, and the natural eye in an ophthalmia, where the red blood is forced into the serous vessels of the sclerotica. But these serous arteries again divide into smaller branches of less diameters than their yellow serous globules, and these branches will therefore be filled with the lymphatic globules which are the next less in size to the yellow serous ones, and constitute a set of arteries of the third order, termed lymphatic arteries, such as furnish the aqueous humours of the eyes, which humours are absorbed or returned again to the blood by serous or lymphatic veins. Hence, then, the sanguiferous arteries will carry all the parts of the blood, the serous arteries will convey all but the red globules, and the lymphatics all but the red and yellow globules, &c.; and thus probably is the succession of vessels and humours continued, till the ultimate or last series of the smallest vessels convey only the most subtile juices of the body."—*Professor Boerhaave's Academical Lectures on the Theory and Practice of Physic.* Vol. ii, p. 217, 1743.

I have introduced these remarks of Professor Boerhaave's, not because I agree with him as regards the *red* and *yellow globules, &c.* contained in the circulatory fluids, but because I accord with him as regards the ramification and distribution of the *sanguiferous* and *seriferous* arteries, veins, &c.

and here they conceived, according to the old ideas, that all the other *absorptions* which were carried on in the body were *effected* by the *red* or *real veins*. While, on the other hand, the next party, and which are the immediate followers of the Hunters, not only attempted to disprove that these vessels took their origin from the extreme branches of the arterial system, but that they were principally from surfaces, and *were a separate and distinct system of vessels, the sole absorbents of the body.*

Having proceeded thus far, they, in the next place, attempted to deny that the real veins had *any thing whatever to do with absorption*, although it had been repeatedly proved by Magendie, as well as a variety of other physiologists, since that period, that the real veins actually *do perform the function of absorption.* But Magendie, as well as the followers of Mr. J. Hunter, have also, in my opinion, fallen into error,—1st, in doubting that the lymphatic vessels* are endowed with the faculty of absorbing; 2d, in considering that the process of absorption is almost a *mechanical process;* 3d, that the *arteries* possess the *power of absorbing* as well as the *veins.*

Mr. J. Hunter, who was the inquirer who theorized and claims the most as regards the functions of the absorbent vessels, informs us that "the knowledge of the use of this system is but of late date, and the knowledge of its different modes of action is still later. Physiologists have laboured to account for its modes of action; and the *principle of capillary tubes*† was, at first, the most general idea, because it was a familiar one. But this is too confined a principle for an animal machine, nor will it account for every kind of absorption. Capillary tubes can only *attract fluids;* but as these inquirers found that solids were often absorbed, such as scirrhous tumours, coagulated blood, the earth of bones, &c. they were driven to the necessity of supposing a solvent. This may or may not be true: it is one of those hypotheses that can never be proved or disproved, and may for ever rest upon opinion. But my conception of this matter is, that nature leaves as little as possible to chance, and that the whole operation of absorption is performed by an *action in the mouths of the absorbents;* but, even under the idea of capillary tubes, physiologists were still obliged to have recourse to the action of these vessels to carry it along after it was absorbed, and might there-

* Magendie is still of opinion that the lacteal vessels are for the purpose of absorbing the chyle, but that this is the only office which they are capable of performing.

† This is in accordance with the newly-advanced theory of Magendie and Fodera, but which I consider to be equally as erroneous as that of the action of the mouths of the absorbents by Mr. Hunter and others.

fore as well have carried this *action* to the *mouths* of these *vessels.*

As we know nothing of the mode of the action of the mouths of these vessels, it is impossible we can form any opinion that can be relied upon; but as they are capable of absorbing substances in two different states, that of *solidity* and *fluidity*, it is reasonable to suppose that they have different modes of action; for, although any construction of parts that is capable of absorbing a *solid* may also be such as is capable of absorbing a *fluid*, yet I can suppose a construction only capable of absorbing a fluid, and not at all fitted for absorbing a solid, though this is not likely; and, to see the propriety of this remark more forcibly, let us only consider the mouths of different animals, and I will venture to say, that the mouths of all the different animals have not a greater variety of substances to work upon than the absorbents have: and we may observe, that, with all the variety of mouths in different animals, this variety is only for the purpose of adapting them to absorb solids, which admit of greater variety in form, texture, &c. every one being capable of absorbing fluid matter, which admits of no variety*."

Mr. J. Hunter, after attributing such a wonderful power to the mouths of these absorbent vessels, and almost leading us to believe that they possessed a power of *breaking down* and *acting* on the more *solid parts* of the *living body*, in a similar manner to the *mouths* and *teeth* of *animals*, in the next place treats of "*ulcerative absorption, insterstitial absorption, progressive absorption, modelling absorption*, and of the *remote cause of the absorption of the animal itself;*" all of which I shall notice in their proper place, as also the manner in which I consider *absorption to take place.*

The immediate followers of Mr. J. Hunter have also gone so far as to *insist on teaching* us, that in *infancy* and *youth* the *arteries act as equal to two*, while the *absorbents act as equal only to one.* On the contrary, in *old age*, or the latter periods of life, the *scale then becomes turned with these absorbents*, for they act as *equal to two*, while the *arterial system* then acts as *equal to only one.*

These notions may appear very plausible to those who only take a superficial view of the subject of absorption; but let me ask, if in infancy and youth the arteries act as equal *to two*, and the absorbents as equal only *to one*, where are those arteries which are considered as not to be capable of absorbing,—where, I ask, are they to obtain the *materials* by which they are *gradually en-*

* Hunter on the Blood, &c. Vol. ii, p. 285, 286.

larging, or *building* up the body? If the common labourers, the *absorbents*, act more slowly in conveying the materials to form and build up the *edifice* than the agents, or *arteries*, and which are those which are considered as the *active agents*, who not only *commence but complete the building*, where are they, if the absorbents act as already described, to obtain their *materials?* All such questions as these will appear in their proper light hereafter; but, first of all, let us endeavour to come to a proper understanding as regards the conjoint *nature* and *functions* of the *real venous* and *absorbent system;* and as there are those who contend, that the *veins* are the proper *absorbents*, while, on the other hand, there are others who contend only for the *lymphatics*, let us, I say, out of these different opinions, and from what has come under our own observations, endeavour to form *one clear and indisputable system of absorption.* If, therefore, it can clearly be shewn that our first positions are *indisputably true*, then our reasoning, if properly conducted, will be *true also.* If, on the other hand, they are false, then all our reasoning, if ever so judiciously conducted, will, by some one or other at some distant period, be found to be erroneous also.

[To be continued.]

EXTRACTS FROM MY CASE-BOOK.

By Mr. W. Simpson, *V. S., Southampton.*

No. III.

Effects of Digitalis.

On Monday, June 11th, I attended a horse belonging to a gentleman a few miles from Southampton, which exhibited all the usual symptoms of pneumonia: I pursued the ordinary treatment, in the course of which the animal took six doses of fever medicine, each containing digitalis ʒss. Great and satisfactory improvement was the result, and I fancied I should very soon dismiss my patient in a state of convalescence. Upon paying my visit, however, on the following Thursday, I was told the horse was worse; that he was extremely dull, and quite off his appetite, &c. On proceeding to examine him, I found the legs and ears very cold; skin considerably colder than natural; mucous membranes not exhibiting the pink hue of health, nor the scarlet colour of inflammation, but a dingy, dirty appearance. These were startling and unlooked-for circumstances betokening no good; but, on the other hand, I found the breathing was not in

the least accelerated or laborious; the dejections were perfectly healthy; there was no manifestation of pain; and upon applying to that unerring guide, the pulse, my fears were greatly diminished. The digitalis had here done its duty to its fullest extent, or rather, perhaps, it had exceeded its duty, for, after every two pulsations, there were two intermissions: if the intermissions had not occurred, the number of the pulse would have been 48, but the *actual* number of pulsations under the effects of the drug was only 24, and it is to this fact I am inclined to attribute the symptoms that were exhibited:—a deficiency or temporary cessation of the circulatory powers readily accounts for the colder extremities and surface of the body, and the dingy hue of the Schneiderian membrane, &c. After-events tend greatly to strengthen this opinion. On the following day, decided improvement had taken place; the appetite was moderate; the skin and extremities had acquired nearly their natural heat, and the mucous membranes appeared of a healthy colour. The pulse clearly explained this:—there was one intermission after each third beat, which reduced the actual number of pulsations to 33; if the intermission had not existed, the number would have been 44.

This case scarcely requires a comment; but, as I have not before heard of a similar instance, I thought its publication might be of some benefit, because, if such a case were to occur to a practitioner new to the use of digitalis, he might discard it from his pharmacopœia as a dangerous remedy. I am convinced, that, if its administration were carried to a much greater extent than in the preceding instance, its injurious effects would very speedily subside; but even if such were not the case, we ought not to condemn a drug because injury follows an overdose: if we pursue that line of conduct, farewell to all our best medicines.

Since transcribing the foregoing case, I have been reminded by a friend, that it is the practice of Mr. Sewell, and many other veterinarians, not to administer digitalis until other sedative means have been pursued to their extent, i. e. until bleeding has been resorted to to that degree which is thought advisable or safe, and nauseating medicines have been tried in vain. Now, I most respectfully differ in opinion from those who adopt the above practice, and candidly acknowledge that, in the sterility of my imagination, I cannot conceive the reasons which should induce us to refrain from the administration of this medicine in the very early stages of febrile diseases. I do not recollect that I ever had an opportunity of hearing a statement of the grounds upon which the practice in question is established, therefore I cannot attempt a refutation of the arguments of the adverse

party; but as I avoid, as far as I am able, following any course of practice, without due consideration of its advantages and disadvantages, and a conviction, in my own mind at least, of its propriety, I will state, as briefly as may be, the substance of my opinions upon the use and action of digitalis, and the reasons why I do not conceive any harm can result from its administration at the onset of inflammatory affections of the thorax, &c.; assuring those from whom I have the misfortune to differ, that my mind is thoroughly open to conviction, and that I shall be most happy and grateful to receive such information as may induce me to alter my opinion.—The object of THE VETERINARIAN is the mutual communication of knowledge; let each contribute his mite, and all will be benefitted in a greater or less degree.

Digitalis is a sedative and diuretic. It appears to have a peculiar and direct influence over the action of the heart, not affecting that organ in common with all other parts of the body, through the medium of a primary and principal effect upon the brain, as is the case with hellebore, but exercising an immediate power over the supply of nervous energy to the heart itself, causing a diminution in the number of its pulsations, and a singular irregularity or intermission of one or two strokes at certain intervals. When this drug is administered to such an extent as to destroy life, a gradual extinction of the vital principle takes place; there are no violent symptoms, no manifestation of pain in any particular part; nothing to lead us to suppose that any great local derangement is the cause of death. In France, experiments have been conducted which bear upon this point:—"A grain of digitaline, dissolved in three drachms of distilled water, was injected into the abdomen of a middle sized rabbit. At the expiration of a few minutes the respiration became slower; the pulse fell to sixty, and was very irregular; all the symptoms of life were gradually extinguished; and the animal died without agitation or pain, and as though it had fallen asleep." A cat and dog were afterwards the subjects of similar experiments, and exactly similar phenomena were noticed in both animals. Upon an examination of these animals, the only account we have of the result is, that the cerebral substance did not appear to have undergone any alteration; that the sinuses of the brain were filled with dark-coloured blood; that the arterial blood presented a decided venous tint, and had very little tendency to coagulate; and that, when examined by a microscope, the red globules seemed, in the cat especially, a little changed in form, but not decomposed. In these experiments every thing tends to strengthen the opinion that the main influence of this medicinal

body is expended upon the circulatory apparatus, and in such a way as to diminish its power—to curtail or interrupt its nervous supply. If the power of the heart be so much decreased that its pulsations are not more than one-half the natural number, and perhaps the energy or force of those pulsations not more than one-half so great as in a state of health, we should most certainly expect to find symptoms and post-mortem appearances resembling those detailed above: the sinuses of the brain would be filled with blood, because the *vis a tergo,* or the derivative power of the heart (whichever be the active agent) is so diminished, that it cannot force or draw the fluid from those reservoirs, and the arterial blood would assume a dark and venous tint, because its circulation is impeded, and it traverses its vessels in a sluggish manner. Now, since such is the action of digitalis—since its chief and primary effect is upon the heart, lessening its power, and subtracting from the number of its strokes, and since it does not appear to produce any inconvenient results upon other organs, except as a consequence of its first action, I not only see no plausible reason to deter us from administering the drug in the early stages of pneumonia, &c., but, on the contrary, I do see many and cogent reasons to induce us to use and to rely upon its agency at the very commencement of inflammatory diseases, and more especially of inflammatory diseases of the lungs. By way of illustration, let us suppose that inflammation exists in the pulmonary mass; that the increased action of the arterial capillaries has induced the flow of such a quantity of blood, that the extremely minute vessels which ramify over the membrane of the air-cells are in danger of extension beyond their tone, and consequent congestion, or rupture; is it not proper that, if we have a drug whose action will, in some degree, arrest the stream, we ought to resort to it? Certainly it is; and that digitalis has this desirable effect, every day's experience tells us; and I am convinced that, wherever it receives an impartial trial, its great utility will be acknowledged.

It is much to be lamented that we have no record of any series of experiments performed with the intent of determining the action of medicines upon the horse, and our other patients: our very limited, and imperfect and superficial, knowledge in that respect is a stigma upon the profession at large, but chiefly upon the Veterinary College; and from facts which have recently come to my knowledge, there appears to be a systematic determination on the part of those in power to stifle every attempt at improvement on that highly important subject.

No. IV.

Fistulous Withers.

A bay carriage horse, five years old, belonging to the Earl of Dundonald (late Lord Cochrane), was affected by catarrh, early in July last, in consequence of which I was sent for to Weston Grove, his lordship's residence. It appeared that on the 2d of July, this being the 6th, the horse in question was delivered to Lord Dundonald's groom from Mr. Dixon's stables in London, and arrived at Weston (distance about eighty miles) on the 5th: he had coughed considerably on the road, and when I first saw him there was considerable discharge from the nostrils, accompanied by general febrile symptoms. I treated him accordingly, and on my visit to Weston a day or two after I found that the disease had nearly subsided, but the groom pointed out a slight swelling upon the posterior part of the withers, evidently caused by pressure from the saddle. There was considerable heat and tenderness, but I hoped to be able to disperse the tumour by refrigerant applications; I therefore prescribed an evaporating lotion, which was freely used until Monday the 9th of July. I found, however, there was no chance of success by a continuance of such treatment, as the swelling, heat, tenderness, &c. had materially increased; I consequently changed my ground, and endeavoured to expedite the suppurative process by the use of stimulants, &c.

July 11*th.*—This morning I had intended to open the abscess, but upon my arrival at Weston I found it had already burst. I removed a circular portion of integument, about three inches in diameter, that would eventually have sloughed away, and thereby exposed the cavity of the abscess. Upon examination I found that the integument on each side was separated from the muscular substance, for the space of about two inches, and that matter was lodged in the cavities thus formed. In no other part was there any depression, or sinus, or loss of substance; but the whole abscess was very superficial, although of great extent. I freely divided the separated skin on both sides, and thus gave egress to the collected fluid. The sore was dressed with the following application: ℞ argent. nitr. ʒj ℈ss, aquæ ℥ij, solv., and the incisions kept open by a portion of lint.

12*th.*—The abscess appears to go on favourably; there is no trace of any fresh sinus, and all the matter has been discharged through the incisions of the skin. The escharotic liniment has produced a very thin eschar over the whole sore, which separates very easily. Repeat the dressing.

13*th.*—To-day I was prevented by other engagements from visiting my patient at Weston.

14*th.*—Upon the whole, the aspect of the sore is favourable, but at the posterior part there is a depression and loss of substance, wherein a small quantity of matter is lodged. Conceiving that a sinus was likely to be formed here, I introduced a seton needle, and brought it out about three inches beyond the boundary of the abscess. The matter passed through the opening thus made, and the sore was dressed as before.

15*th.*—The horse was this day brought to my infirmary, in Southampton, and a daily dressing with sol. zinci sulph. was resorted to for about a week, the incisions and seton being kept open. The wound filled up very slowly, and although progress was made, it was not so rapid as I wished and expected: neither did the granulations assume a healthy appearance; and instead of laudable pus, there was a considerable discharge of a thin ichorous character. In consequence of this, I altered my plan, and used a solution of the chloride of lime After a very few dressings with the chloride, its excellent effects were visible; the ichorous discharge ceased, and the granulating surface became of a beautiful healthy colour: the wound filled up and cicatrized without the slightest untoward appearance, and on the 14th of August the horse was discharged; since which time he has been at regular work.

I have quoted the preceding case solely for the purpose of adding my humble testimony to the value of chloride of lime as a stimulant: I believe it is a medicine which is daily gaining ground in our profession, and by and by I trust to see it in general use: like many, nay almost all other medicinal bodies, its virtues and effects upon our patients are but very imperfectly known. Surely at no distant day we may hope for an inquiry into this very fertile subject.

Southampton,
Oct. 15th, 1832.

MR. YOUATT'S VETERINARY LECTURES,

DELIVERED AT THE UNIVERSITY OF LONDON.

LECTURE XXII.

The Diaphragm—the Mechanism of Respiration—Rupture of the Diaphragm.

Bounding the thorax posteriorly, the base of the cone in the human subject, the interposed curtain between the thorax and the abdomen, is the diaphragm. It is, as you will here perceive,

an irregular muscular expansion, proceeding from the inferior surface of the lumbar vertebræ posteriorly and superiorly, adhering to the ribs on either side, and extending obliquely forward and downward to the sternum; or, rather, it is a flattened muscle arising from all these points, with its fibres all converging towards the centre, and terminating there in an expansion of tendinous substance.

Anatomy of the Diaphragm.—In the short account which I purpose to give of the structure of the diaphragm, I shall follow, as nearly as I can, the description of our best anatomist, Mr. Percivall. You at once perceive that the diaphragm may be divided into the main circular muscle, with its central tendinous expansion forming the lower part, and two *appendices*, or *crura*, as they are called, from their peculiar shape, constituting its superior portion. We trace the fleshy origin of the grand muscle, laterally and inferiorly, commencing from the cartilage of the eighth rib anteriorly, and following pretty closely, as we proceed backward, the union of the posterior ribs with their cartilages; excepting, however, the two last. The attachment is peculiarly strong; it is denticulated; it encircles the whole of the lateral and inferior part of the chest as far as the sternum, where it is connected with the ensiform cartilage. Immediately under the loins are the *appendices* of the diaphragm, commencing, on the right side, from the inferior surfaces of the five first lumbar vertebræ, by strong tendons which soon become muscular, and form a kind of pillar; and, on the left, proceeding from the two first lumbar vertebræ only, and from the sides rather than the bodies of these vertebræ, and these also unite and form a shorter pillar or leg. The left crus or appendix is shorter than the right, that it may be more out of the way of pressure from the left curvature of the stomach, which, with the spleen, lies underneath. Opposite to the 17th dorsal vertebra, these two pillars unite and form a thick mass of muscles, detached from the vertebræ, and leaving a kind of pouch between them and the vertebræ. They not only unite, but they decussate: their fibres mingle and again separate from each other, and then proceed onward to the central tendinous expansion, towards which the fibres from the circular muscle, and the appendices, all converge.

The tendinous central Expansion.—We shall presently see that the diaphragm is the main agent, both in ordinary and extraordinary respiration. In its quiescent state, it presents its convex surface towards the thorax, and its concave one towards the abdomen. The anterior convexity abuts upon the lungs; the posterior concavity is occupied by some of the abdominal viscera. The effect of the action of this muscle, or the contraction of its

fibres, is to lessen the convexity towards the chest, and the concavity towards the abdomen: perhaps, by a powerful contraction, to cause it to present a plane surface either way. The abdominal viscera that must be displaced in order to effect this, have considerable bulk and weight; and when the stomach is distended with food, and the motion required from the diaphragm in rapid breathing is both quick and extensive, there needs some strong, firm, elastic, substance to bear it. The forcible contact and violent pressure would bruise and otherwise injure a mere muscular expansion; and therefore we have this tendinous expansion, comparatively devoid of sensibility, to stand the pressure and the shock, which will always be greatest at the centre.

The Centre of Expansion in other Animals.—The Ox.—Now compare this expansion in the horse and the ox, the one formed for speed and the other for slow work only, and for the accumulation of flesh and fat. See the wide expanse of tendon in the horse; the comparatively little development in the ox. See also the thickness of muscle in the ox, compared with that in the horse. It may be placed here in him with safety; there will seldom be rapid action, and his work will be more easily done and with less exhaustion; yet occasionally, from the weight of his paunch, pressing into the concave portion of the diaphragm, the labour will be considerable, although slow.

The Dog.—Look again at the dog. The muscular part of the diaphragm is thick and strong, the aponeurotic expansion comparatively smaller. From the smaller expanse of the thorax in this animal, and the consequent little expansion of the diaphragm, the action, although occasionally rapid and violent (for he is an animal of speed), is not so extensive; and more muscle and less tendon may be given to him, not only without detriment, but with evident advantage. Therefore it is, that although we have occasional rupture of the heart in the dog, oftener perhaps than in the horse, we have no rupture of the diaphragm, at least there is no case of it on record, and no one has come under my observation. In the ox I never saw rupture of the heart, and rarely that of the diaphragm; and for very sufficient reasons, whether we regard the structure or the habits of the animal.

Spasm of the Diaphragm.—When I look at this large aponeurotic expansion and comparative little muscular power in the diaphragm of the horse, and think of the frequent thoughtless and cruel exaction of labour from this portion of the respiratory machine, I cease to wonder at that which was first hinted at by a sporting writer of deserved celebrity, and afterwards so well described by that accurate observer Mr. Castley. A horse had been "a good deal blown" in a run of an hour without a check.

When Mr. Castley saw him, "his breathing and attitude indicated the greatest distress. The prominent symptom, however, was a convulsive motion or jerking of the whole body, accompanied by a dull thumping noise, audible at several yards distance, and evidently proceeding from his inside. The beats appeared to be about forty a minute. On my placing my hand over the heart, the action of that organ could be felt, but *very indistinctly; the beating* evidently came from behind the heart, and was most plainly to be felt in the direction of the diaphragm. Again, placing my hand upon the abdominal muscles, the jerks appeared to come from before backward: the impression on my mind, therefore, was, that it was a spasmodic affection of the diaphragm, brought on by violent distress of breathing." Mr. Castley pursued a very judicious mode of treatment. He administered stimulants. He refrained from bleeding until the horse began to rally, and the animal did well.

Caution.—This case, gentlemen, deserves to be treasured in your memories, not only as an illustration of the connexion between comparative anatomy and comparative disease, but as a most useful guide against an error that may be fatal to your patient. Had he mistaken this "audible thumping" for carditis, he would have bled copiously at the first, and nature would have sunk.

Use of the Appendices.—The use of the appendices will now be evident. They are placed under the loins; at a part at which there will be considerable motion, when the animal is in rapid progression, and more especially if he is carrying weight. The alternate rising or falling of this portion of the spinal column would, if the diaphragm were continued straight around, interfere very materially with its action. It would often tighten the diaphragm when we wanted it relaxed, and relax it when we wanted to have it to press with considerable and uniform force against the abdominal viscera. It would cause uncertainty and confusion in the action of this muscle. Now these appendices, inserted so much farther back, and going to join the diaphragm with the obliquity that we here observe, will act as springs beautifully and efficiently. The spinal column may rise and fall, but comparatively little of that motion will reach the diaphragm; it will be neutralized or spent as it is communicated along the fleshy columns which proceed for awhile almost parallel with, but separate from, the spine. We shall see another use of them presently.

The Openings through the Diaphragm.—There are three. Superiorly you will perceive that through which the posterior aorta passes into the abdomen, and observing it in the space be-

tween the appendices, the crura, as it were, striding over it, to defend it from pressure and from injury: you will see a kind and wise provision for the safe conduct of a vessel so important as this.

Next, and in the decussation of the crura, and in the most muscular part of the diaphragm, where its fibres, or the fibres of the crura, are crossing each other above and below the aperture, passes the œsophagus. I am not sure that this intertwining of muscular fibres around the œsophagus in this place may not combine with the ureter-like entrance of that tube immediately afterwards into the stomach, to produce the difficulty of vomiting in most of our patients; at least I see probable danger in forcing down instead of extracting any foreign body firmly wedged in the œsophagus, lest the spasmodic constrictive action which the continued presence of the body, and our efforts to dislodge it, will produce in the muscles of this tube, may be propagated to these neighbouring ones of the diaphragm, and thus an insurmountable obstacle raised to the effecting of our purpose.

Lowest of all is an aperture through the tendinous expansion, and through which the vena cava posterior enters the thorax. It is sufficiently high in the tendinous expansion to be out of the way of pressure, and, being placed in that expansion, cannot well be compressed so as to hinder the passage of the blood. It is well said, that the vein is held open by the whole tonic force of the diaphragm.

The Tunics of the Diaphragm.—The thoracic or anterior face of the diaphragm is covered by the pleura, of which I shall presently speak; and the posterior or abdominal face by the peritoneum, which belongs to the digestive system.

The Arteries and Veins.—This muscle, so important in its office, is plentifully supplied with bloodvessels. As the posterior aorta passes beneath the crura of the diaphragm, it gives out sometimes a single vessel which soon bifurcates; sometimes two branches, which speedily plunge into the appendices or crura, while numerous small vessels escaping from them spread over the central tendinous expansion. As the larger muscle of the diaphragm springs from the sides and the base of the chest, it receives many ramifications from the internal pectoral, derived from the anterior aorta; but more from the posterior intercostals which spring from the posterior aorta.

The veins of the diaphragm belong exclusively to the posterior vena cava. There are usually three on either side; but they may be almost referred to two chief trunks which come from the circumference of the diaphragm, and converge towards the centre, and run into the posterior cava, as it passes through the tendinous expansion.

The Nerves.—The functional nerve of the diaphragm, or that from which it derives its principal action, and which constitutes it a muscle of respiration, is the phrenic or diaphragmatic. Although it does not proceed from that portion of the medulla oblongata which gives rise to the glosso-pharyngeus and the par vagum, yet there is sufficient to induce us to suspect that it arises from and should be referred to the lateral column between the superior and inferior, the sensitive and motor nerves, and which may be evidently traced from the pons varolii to the very termination of the spinal chord. This specimen illustrates their lateral origin. They do not spring from the lateral column so decidedly as the spinal accessory, and in one continued line, but, as I shall more particularly shew you when treating of the sensorial system, there is a peculiarity in their origin, and especially from the inferior surface of the chord, which would almost justify us in the conclusion, that, connected with the respiratory nerves in function, they are derived from the same common source.

The phrenic nerve first appears considerably lower in the neck in all our patients than in the human being. The precise situation is uncertain. I have sometimes traced a filament from the fourth cervical nerve, which proceeds downward, and unites with branches from the fifth and sixth, to constitute a perfect nerve; but in other cases there has been a filament from the fifth, and the nerve has been principally composed of branches from the sixth and seventh cervicals. The more extensive motion in the neck of the quadruped, or the exposure of the superior part of it to injury, might cause a higher origin of the phrenic nerve to be inconvenient or unsafe; but, however, being formed, it travels down the neck without any anastomosis; it enters the chest between the two laminæ of the mediastinum; it passes over the pericardium, where it is a beautiful object in a dissection of the chest; and, still pursuing its lonely course, arrives at the centre of the diaphragm, and ramifies over the whole substance of that muscle.

Experiments on the Phrenic Nerve.—Sir Charles Bell has instituted some interesting and satisfactory experiments on the function of this diaphragmatic nerve; and he has collected some others, at which I will briefly glance. When the phrenic nerves were divided in an ass, a remarkable heaving of the chest took place. The other auxiliary respiratory muscles, and particularly the intercostals, were labouring hard to supply the deficiency of the diaphragm; and the chest rose higher than usual, and its margins particularly were more expanded at each inspiration. The spinal accessory was then divided on one side; the mastoid

and trapezius muscles on that side ceased to act, yet respiration was violently although imperfectly performed by the intercostals and the other respiratory muscles, the nerves of which had not been divided.

Again, when the spinal marrow at the lower part of the neck, and beneath the perfect formation of the phrenic nerve, was divided, respiration was continued by means of the diaphragm. In another case the phrenic nerves were first divided, and then the spinal marrow at the bottom of the neck. Respiration was stopped in the chest; but there was a catching and strong action at intervals of the associate respiratory muscles of the nostrils, and the side of the chest. When this animal was apparently dead, he was reanimated by artificial breathing, and these muscles again contracted, but the chest remained at rest.

The Diaphragm the principal Agent in Respiration.—These experiments are decisive, and mark the diaphragm as the main agent in the work of respiration. The others are mere auxiliaries, little needed in ordinary respiration, but affording the most important assistance, when the breathing is more than usually hurried.

The Mechanism of Respiration.—Then the mechanism of respiration may perhaps be thus explained. I will suppose the lungs to be in a quiescent state. The act of expiration has been performed, and all is still and quiet. From some cause enveloped in mystery—connected with the will, but independent of it—some stimulus of an unexplained and unknown kind—the phrenic nerve acts on the diaphragm, and that muscle contracts; and, by contracting, its convexity into the thorax is diminished, and the cavity of the thorax is enlarged. At the same time, and by some consentaneous influence, the intercostal muscles act, with no great force indeed in undisturbed breathing, but in proportion as they do act the ribs rotate on their axes, their edges are thrown outward, and thus a twofold effect ensues;—the posterior margin of the thorax is expanded, and the cavity is plainly enlarged; and also by the partial rotation of every rib the cavity is still more increased;—at the same time, this bellying out of the parietes of the chest is an antagonist to, and limits the too powerful contraction of, the diaphragm.

Auxiliary Muscles.—By some consentaneous influence, the spinal accessory likewise exerts its power, and the sterno-maxillaris is stimulated by the anterior division, and the motion of the head and neck corresponds with and assists that of the chest; while the posterior, by its anastamoses with the motor nerves of the levator humeri and the splenius, and many other of the muscles of the neck and the shoulder, and by its direct influence

on the rhomboideus, associates almost every muscle of the neck, the shoulder, and the chest, in the expansion of the thorax. These are muscles, however, which, in undisturbed respiration, the animal scarcely needs; but which are necessary to him when the respiration is much disturbed, and to obtain the aid of which he will, under pneumonia, obstinately stand until he falls exhausted or to die.

Atmospheric Pressure.—Well, the cavity of the chest is enlarged. But this is a closed cavity, and between its contents and the parietes of the chest a vacuum would now be formed; or rather an inequality of atmospheric pressure is produced from the moment the chest begins to dilate. As the diaphragm recedes, there is nothing to counterbalance the pressure of the atmospheric air communicating with the lungs through the medium of the nose or mouth, and it is forced into the respiratory tubes which have been described in former lectures, and the lungs are expanded and still kept in contact with the receding walls of the chest. There is no sucking, no inhalent power in the act of inspiration; it is the simple enlargement of the chest: and a resistance being thus removed, which the pressure of the air could not before overcome, but which once removed, air rushes in with a force proportionate to the rapidity or the extent of the removal.

Act of Expiration.—From some cause, as inexplicable as that which produced the expansion of the chest, the respiratory nerves cease to act; and the diaphragm, by the inherent elasticity of its tendinous expansion and muscular fibres, returns to its natural form, projecting its convexity into the thorax; and the abdominal muscles, which had been put on the stretch by the forcing of the viscera into the posterior part of the abdomen by means of the straightening of the diaphragm, contract, and accelerate the return of that muscle to its quiescent figure; and the ribs, all armed with elastic cartilages, and those cartilages bent in such angles as to dispose them most rapidly and most perfectly to regain their former figure, fall again; and the muscles of the shoulder and the chest relax, and the lungs are pressed on every side, and the air with which they were distended is partially forced out again. There is only one set of muscles actively employed in expiration, namely, the abdominal: the elasticity of the parts displaced in inspiration would almost alone accomplish the purpose.

The Elasticity of the Lungs.—The lungs are not altogether passive. The bronchial tubes, so far as we have been enabled to trace them, are lined with cartilage, divided for the purpose of folding up when the lungs are compressed, but elastic enough to afford a yielding resistance against both unusual expansion and

contraction. In their usual state the air-tubes are distended beyond their natural calibre. The proof of this is, that if the parietes of the thorax are perforated, and the pressure of the atmosphere is thus rendered equal within and without them, the lungs immediately collapse. Their elasticity is then no mean agent in the act of expiration, and even in the contraction of the abdominal muscles this principle has much to do.

Its Effect on the Heart.—This constant effort at contraction in the lungs answers another very important purpose. The heart is inclosed in the thoracic cavity. It is exposed to the pressure of the atmospheric air, which, bearing with its full force on this organ, would not permit it to beat; but just in proportion to the resiliency or elastic resistance to expansion in the cartilaginous or cellular texture of the lungs, the weight or pressure upon the heart is taken away or neutralized. The resiliency of the lungs and the pressure of the external air are probably more nearly balanced than we sometimes imagine.

Here we will at present leave the mere mechanism of respiration. This muscle having so much to do, must be occasionally subject to injury. I have hinted at that spasmodic action which is often the morbid consequence of exhaustion; and I would again urge you to be on your guard that you do not confound it with carditis, a disease proceeding from a very different cause, and requiring almost opposite treatment.

Inflammation of the Diaphragm.—The French writers speak of inflammation of the diaphragm. I can conceive such a disease to be not only a possible but probable occurrence; but I have not met with it:—there is no English record of it, and I must be content, unwillingly so, with their account of the matter. They speak of fever, cough, difficulty of respiration, convulsive beating of the flanks, cerebral irritation, convulsions, fury, and the last to such an extent as to be confounded with rabies. Every case was unsuccessful, in spite of the most vigorous treatment.

Rupture of the Diaphragm.—Of an accident to which this muscle is exposed, namely rupture, we unfortunately know more. There are cases on record of ruptured diaphragm in the human being, but principally as connected with laborious parturition, the rationale of which it is easy to understand. In the horse it is the usual consequence of over-exertion. Mr. Cartwright, I think, mentions a case in which it occurred in the mare at the time of parturition.

A Case of fatal Rupture.—Mr. Hales, of Oswestry, records a case in which a mare driven long at a quick pace suddenly shewed symptoms of distress; it was with great difficulty that

she could be got home to her stable, and she died in two hours. The rent extended from the ensiform cartilage to the centre of the diaphragm. Such a lesion as this must of necessity be fatal. It is somewhat difficult, however, to describe the symptoms by which an accident of this nature may be clearly designated. The breathing must of necessity be most laborious; yet not the short, quick, and painful respiration of inflammation, but a slower, more laboured, double effort at expiration.

Is it always fatal?—Although a lesion such as this must of necessity be fatal, a question arose, whether a slighter rupture of the diaphragm might not exist for a long time, only characterized by disordered respiration. Not only the possibility, but the actual occurrence of it has been demonstrated. Consider, gentlemen, the horizontal position of the thorax of the horse, and imagine a small rupture towards the lower part of it. The lung will not protrude into the abdomen, but, from the powerful pressure of the abdominal muscles on a cavity not defended by bony walls, some portion of the intestines will be forced against or into the thorax. While strangulation does not take place, the injury will produce nothing more than disordered respiration, and that possibly not to a great degree. It may even be difficult to distinguish it from broken wind.

A remarkable Case of Chronic Rupture.—A horse died of supposed enteritis: on examination the diaphragm was ruptured, and a portion of intestine had insinuated itself through the aperture. It was strangulated, and mortified. This must have taken some time to accomplish; but as an irrefragable proof of its being a long-standing case, the edges of the rupture were nearly healed, and a quarter of an inch in thickness. Another horse, on the 25th of December, received a violent kick on the right side, which broke one of his ribs. His respiration immediately became exceedingly quick and laborious, and continued so for some hours, when suddenly it resumed almost its natural character. He remained quiet more than a week, when he was seized with violent colic and constipation and fever, which occurred occasionally for the space of five weeks, until he died, but apparently from inflammation of the wound. A rupture was found towards the inferior part of the diaphragm, and the greater part of the small intestine had passed through it, and occupied the right side of the thorax, and there was strong adhesion of the intestine to both of the pleuræ; and, what was most extraordinary of all, a portion of the intestine had glided along the seventh rib, and passed between the longitudinal opening caused by the upper part of the fracture, and had entangled itself between the ribs and the subscapularis muscle, forming a second hernia.

The rupture of the diaphragm had evidently taken place at the moment of the blow. The extreme difficulty of respiration proved this; but a portion of intestine insinuating itself into the orifice, the passage was closed, and the breathing became as quiet as before. Colicky pains, however, attended the threatened or incipient strangulation of the intestine; but the animal lived five weeks, and was cheerful and playful a few days before his death.

May it be connected with Broken Wind?—Then it being ascertained that a lesion of the diaphragm may exist for a considerable time, and not be characterized by any peculiarly laborious respiration, another question arises, whether it may not occasionally exist as a cause of broken wind; for it is a singular fact, that, in many of the cases of ruptured diaphragm that are on record, the horse was broken-winded. Was broken wind the result of the rupture, or the rupture the consequence of the increased difficulty in expelling the air arising from broken wind? One thing, however, should not be forgotten, that rupture of the diaphragm is in all probability much oftener induced by the struggles of death, than previously existing.

This is a difficult as well as a new subject, and we must await the result of many a careful observation, ere we fully make up our minds on it.

Rupture of the diaphragm is the occasional consequence of hoove in the ox.

A CASE OF TETANUS.

By Mr. W. Laing, *of Upper Banchery, N. B.*

Having been requested to examine a farm horse, belonging to Colonel Duff, which was seized with locked jaw on the 24th of November last, I found, upon my arrival, that he had been bled, and that his head and mouth had been bathed with vinegar; treatment which could not do harm, but which would not arrest the progress of such a disease.

The symptoms left no doubt with regard to the nature of the disease. The muscles of the body were very much contracted, especially those of the head and neck; the nose protruding forwards, and the eyes strained upwards. The nostrils were much distended, and the breathing was difficult. The bowels were costive, and the body covered with a cold perspiration.

The mode of treatment which I adopted was as follows:—Twelve drachms Barbadoes aloes and four drachms of opium were

made into two balls, and administered with great difficulty by means of a cane. On the next day, a bottle of linseed oil was given; and, on the day following, his belly appeared much swollen: a rowel was introduced, which discharged very copiously.

On the next day, a ball, composed of three drachms of opium and an equal quantity of camphor, was administered, together with another bottle of linseed oil. The bowels were now for the first time opened.

A few days afterwards he had a drench composed of the following ingredients, viz., powdered opium two drachms, camphor two drachms, spirit of hartshorn one ounce, spirit of turpentine one ounce, and strong ale one pint. His loins were kept covered with a sheep's skin taken warm from the animal's back. The skin which was first applied became shrivelled and dried in the course of three days; but the second skin remained moist and pliable. These applications produced a favourable change in the disease, insomuch that, upon the following morning, he was found lying down, and he rose without assistance.

A short time afterwards I gave him another ball, composed of three drachms of opium and an equal quantity of camphor, which was repeated in the course of a few days: a second rowel was introduced for the purpose of abating the swelling, which had again made its appearance.

It may be unnecessary to add, that, during the continuance of the disease, his food consisted chiefly of boiled barley, or malt mixed with linseed. In the first stage of the disease his jaws were so much closed that he could with difficulty merely suck up his food; and had it not been that his appetite remained keen, which is usually the case in locked jaw, his provender would have remained untouched. In the latter stage of the disease he was walked out a little every day.

On the 30th of December, the animal was so far recovered as to be considered fit for light work.

AMPUTATION OF THE PENIS OF THE HORSE.

By Mr. William Young, *V.S., Muirhead, of Earnkirk, N. B.*

Being called on the 6th of August last to a horse, the property of Mr. James Tennant, farmer, of Croftfoot, in the parish of Cadder, I found him with a large cancerous tumour on the glans penis, which prevented him from retracting the yard within the sheath. It had the appearance of a corroded surface, with

ichorous discharge, and irregular fungus over the extremity of the glans.

On inquiry of the proprietor, I learned that the disease was observed about the beginning of January last, when there was a difficulty of voiding urine. The horse was then cast by a farrier, as he supposed, about the 8th of February, and the sheath washed out, which gave temporary relief. This was followed by powerful and repeated escharotics, but the disease set them all at defiance. I gave it as my opinion that amputation could afford the only permanent relief.

I did not see the case any more till a message was sent to me, the morning of the 29th, that I was to come and amputate the tumour, "because it was daily getting larger." On seeing it again, its size was almost doubled, and there was a small hæmorrhage from the eroded vessels, so that symptoms of a fatal termination began to be apparent. The owner declared that it had made more progress during the month prior to this than it had done for two preceding ones. The patient was cast and secured, the tourniquet was applied, and then, by a circular section, I amputated seven inches of the penis, including the whole of the tumour, and which weighed forty ounces. The vessels were secured by ligature: the whole was the work of fifteen minutes. The patient voided urine freely in five minutes after the operation. Laxative diet was ordered, but the horse did not appear at all affected by the operation.

30th.—Feeding well; a little swelled around the sheath.

31st.—Feeding well; swelled a little more.

Sept. 1st.—Appetite still good; swelling extending anteriorly beyond the sheath; urine voided freely.

3d.—Swelling decreasing, and at grass.

7th.—Swelling decreased, and at grass.

8th.—In the plough, and has been doing his usual work since, and the parts quite healed.

HORRIBLE BARBARITY BY A COUNTRY COW-LEECH.

Reported by a neighbouring Practitioner.

A few weeks ago, a message was sent to my house, requesting that I would see a cow that was calving, belonging to a poor man. I was from home, and they could not, or would not, stay till my return, but sent for a *man*, or rather an unfeeling *monster*, which goes under the appellation of *a very skilful doctor*. He had tried to take away the calf, but could not accomplish it,

and evidently had killed it by the force he had used. There could be no doubt about the matter, although one would hope that he could not see it. Unwilling that the cow should die with the calf in her, he actually commenced opening up the mother, and took out the calf. If the calf had been alive, and the cow dying, this might have been pardoned; but the calf was dead; and if he had known his business, he might have ascertained this in a moment. The cow, as might have been expected, soon went the same road as the calf. Should not the rascal be punished for his temerity? His employer was a poor man, and a little *silly (foolish)*, or he would not have let him act in such a manner.

ON EMPHYSEMA OF THE LUNGS.

By Dr. Townsend.

[Our readers, we are assured, will peruse with interest Dr. Townsend's admirable account of a disease in *the human being* so closely resembling one species, at least, of "broken wind" in our principal patient. "Mutate nomine", and with the exception of some minutiæ in anatomy, which either do not exist in the lung of the horse, or which we have been too idle to observe, we can follow the learned Doctor in every step of his demonstration of the natural and morbid anatomy of the organ, and his delineation of he symptoms of the disease. It is the best veterinary lecture on the subject of "broken wind" that we know of. It is extracted from "The Cyclopæda of Practical Medicine," now publishing in monthly parts.—Ed.]

Emphysema of the Lungs.—The morbid appearances presented by this disease have been noticed by Bonetus, Morgagni, Van Swieten, Storck, and other anatomists. In this country we have a very correct account of an emphysematous lung from the pen of Sir John Floyer; and Dr. Baillie's work on Morbid Anatomy contains an accurate description of the three principal circumstances which characterize this lesion, namely, the great size of the lungs, the dilatation of the cells, and the vesicles formed by extravasation of air under the pleura. The discovery of its frequent occurrence as a disease, of its etiology, and diagnosis, was, however, reserved for the pathological researches of M. Laennec. In order to render the following observations intelligible, it will be necessary to premise a few observations on the anatomical structure of the pulmonary parenchyma, as the emphysematous condition of this viscus is, in many cases, merely an exaggeration of its natural or healthy structure.

If we examine in a good light the surface of a sound lung, we can ascertain by the naked eye, through the transparent pleura, that its parenchyma is formed by the aggregation of a multitude of small vesicles of an irregularly spheroid or ovoid figure, full of air, and separated from each other by opaque white partitions. These vesicles, which on the surface of the

lungs have the appearance of small transparent points, are not of an uniform size; the largest are equal to the third or fourth part of a millet-seed. They are grouped in masses or lobules, divided from each other by partitions of closely condensed cellular membrane, very thin, yet thicker and more opaque than the partitions between the individual cells. These partitions traverse the pulmonary substance in all directions, and crossing each other under various angles, form figures of different shapes, such as lozenges, squares, trapeziums, or irregular triangles, the bounding lines of which are rendered still more defined by the black pulmonary matter that is deposited along them*.

If we analyze this structure, we find that it is composed, 1st, of the minuter ramifications of the bronchi, which go on subdividing and diminishing in calibre until they terminate each in a cul-de-sac or air-cell, as it is commonly termed, of extreme delicacy and minuteness, on the parietes of which the pulmonary vessels ramify in an extreme state of fineness†; and, 2dly, of the common cellular membrane which serves to connect these air-cells together, and which likewise forms several membranous partitions that divide each lobe into a number of distinct lobules, and is hence termed the *interlobular cellular tissue;* each lobule being as perfectly isolated from those adjoining it by this partition, as each lobe is by its investiture of pleura.

Each of these textures is liable to emphysema, and hence we have two varieties of this disease in the lung: 1. *the vesicular or true pulmonary emphysema* (as it is somewhat arbitrarily termed by Laennec), formed by the dilatation of the minute bronchi and air-cells, or by the rupture of their parietes, by which several contiguous cells are thrown into one; 2. *the interlobular emphysema,* formed by the infiltration of air into the interlobular cellular tissue. The former usually occurs as a chronic disease, while the latter as generally assumes the character of an acute affection.

I. *Pulmonary or vesicular emphysema.*—In pulmonary emphysema the size of the air-cells is much increased and is less uniform. The greater number equal or exceed the size of a millet-seed, while some attain the magnitude of hemp-seed, cherry-stones, or even French beans‡. We are disposed to think, however, that cavities of such a size are rarely formed by the dilatation of individual cells, as in more than one hundred dissections which we have made of pulmonary emphysema, we never, except in one instance, saw the air-cell dilated to the size

* Forbes's Translation of Laennec.
† *Reisseisen,* De Structura Pulmonum.
‡ *Laennec.*

of a garden-pea. In the great majority of cases the cavities of this size, or even of a less diameter, are formed by several cells being thrown into one, in consequence of their delicate partitions being overstrained and ruptured. In some cases, the walls of the cells disappear from one entire lobule, leaving only some lacerated filaments traversing its cavity from one interlobular partition to another; and in some instances these partitions are also lacerated, and their respective lobules are thus thrown into one large cavity, which usually reaches the surface of the lung, and forms a projection under the pleura. In order to see these alterations of structure, it is necessary to inflate the lung and dry it previous to examination, as without this precaution the cells collapse immediately when cut into, and all appearance of emphysema is consequently lost.

"Emphysema may affect both lungs at the same time, one only, or a part of one, or both: in the latter case, and, indeed, in any case, as long as the disease is confined to a simple dilatation of the cells, or to the rupture of a few of their partitions, and does not form vesicles of any considerable size on the surface of the lung, it may be easily overlooked in the dead body: for this reason, the disease, which is really one of the most constant morbid appearances in all cases of protracted dyspnœa, has been as constantly overlooked; and in this way the lungs of asthmatic patients have been regarded as healthy when they are in reality emphysematous, and cases of dyspnœa set down as nervous or idiopathic, for which anatomy has now discovered an organic cause.

"When the disease exists in a very high degree, we cannot help being struck with the appearance of the parts. The lungs seem as if confined within their natural cavity, and when exposed, instead of collapsing as usual, they rise in some degree, and project beyond the borders of the thorax. If we examine them in this state, they feel firmer than natural, and it is more than usually difficult to flatten them. The crepitation they yield on pressure, or being cut into, is less, and of a kind somewhat different; it is more like the sound produced by the slow escape of air from a pair of bellows, and the air makes its escape from the cells much slower than in a healthy state of the organ. When we detach the lung, the crepitation is found to be still less perceptible, and the sensation conveyed by pressing the parts is very like that produced by handling a pillow of down. On placing an emphysematous lung in a vessel of water, it sinks much less than a healthy lung, and sometimes it floats on the surface with scarcely any obvious immersion. The pulmonary tissue is drier in a lung affected with emphysema than in

a healthy one, and it is unusual to find, even towards the roots of the lungs, any trace of the common serous or sanguineous infiltrations usually found after death*." In some cases, however, especially when the heart is diseased and the pulmonary circulation much obstructed, the emphysematous lung becomes red and congested.

It seldom happens that emphysema exists to the extent so admirably described in the preceding paragraph, without occasioning the rupture of several of the dilated cells; and it is by no means uncommon to find one or more large vesicular cavities formed, each by the reunion of all the air-cells of one entire lobule, and bounded by its interlobular partitions, which often remain uninjured when the texture of the air-cells which they enclose is completely destroyed. In extreme cases these interlobular partitions give way likewise, and several lobules are then thrown into one large vesicular cavity, resembling more a bladder filled with air or the vesicular lung of a frog, than the parenchymatous texture of the human lung. These alterations are most frequently observed at the margin of the lung, or at its base where it reposes on the diaphragm.

From these observations it results that emphysema of the lung essentially consists in the rarefaction of its parenchyma, produced either by the dilatation of its cells, or the rupture of their parietes. These lesions may be referred to three principal causes:—1. hypertrophy; 2. atrophy; 3. over-distention of the air-cells.

1. *Hypertrophy.*—Laennec has remarked that in several cases where the lung has been rendered incapable of performing its functions, the other, having double duty to perform, acquires an increase of volume proportionate to its increased activity of function. This increase of size appears to result from an increase in the capacity of the capillary bronchi and air-cells, at the same time that their parietes are increased in thickness; indeed, this is rendered very evident by inflating and drying the lung; for when after this process it is cut into slices, we at once perceive some cells much larger than in the natural state, and likewise their parietes much thicker than they usually are. The state of the air-cells in this form of emphysema may be considered as analogous to the hypertrophy with dilatation of the heart and other hollow muscles.

2. *Atrophy of the lung.*—Whenever any cause continues for a certain length of time to impede the free entrance of air into the pulmonary cells, those cells diminish in number, and the parenchyma of the lung falls into a state of atrophy. Ac-

* Forbes's Translation of Laennec.

cordingly; we find this atrophy invariably taking place in lungs which have been compressed by pleuritic effusions of long standing, or when the principal bronchial tube is compressed by external tumours. In old age, likewise, the lungs sometimes undergo so considerable a degree of atrophy, that the chest is visibly contracted in consequence; and in such persons they are small, contain very little blood, are remarkably light, and their whole texture appears rarefied. If we inflate and dry a lung in this state, we perceive a remarkable alteration in the disposition of the ultimate bronchial ramifications, and of the air-cells in which they terminate; they no longer form distinct cavities, separated from each other by complete septa: at first these septa are only reduced to a state of extreme tenuity, but at a later period some of them appear perforated in one or more points, while others seem ruptured and irregularly torn. In some cases the walls of the cells disappear altogether, and we only find in their stead some delicate filaments traversing in different directions cavities of various sizes. In the parts of the lung where these alterations exist, there are no longer to be found either bronchial ramifications, or air-cells, properly so called, but merely vesicles of greater or less diameter, divided into compartments by imperfect septa or irregular laminæ, bearing a perfect resemblance to the lungs of cold-blooded animals*.

Thus we see how lesions the most opposite in their characters, hypertrophy and atrophy, may alike produce this disease. But in the case of hypertrophy there is only dilatation of the cells without laceration of their parietes, unless as an accidental occurrence; whereas, in atrophy of the lung, large cavities are formed by several cells being thrown into one by the extenuation and rupture of their walls. Hence arises this important difference, that in the first case the number of surfaces on which the blood is exposed to the action of the air remains the same, while in the second the number of these surfaces is considerably diminished. It is easy to see that the respiration will not be equally affected in these two cases, and that the dyspnœa must necessarily be more considerable in the latter. There is, however, one circumstance that occurs in old age (at which period this alteration, as already stated, most generally occurs) which prevents the respiration from being as much embarrassed as we might, *à priori*, have expected,—namely, the diminution that takes place in the quantity of the blood, or (what comes to the same thing) the diminution in the rapidity of the circulation. For this reason atrophy of the lung, when occurring in old age, should rather be regarded as a natural phenomenon resulting

* Andral's Pathological Anatomy.

from the fulfilment of a law in the animal economy which establishes a constant proportion between the quantity of blood to be aërated in a given time, and the extent of surface on which this aëration is to be accomplished. Thus we find that the lung has its maximum of density in infants, and in those animals that have either a very rapid circulation or a very large supply of blood; and that, on the contrary, the density of the lung is at its minimum in old persons, and in such animals as receive into their lungs, at each round of the circulation, only a small proportion of the blood contained in their circulating system*.

Besides these, which may be considered as the physiological causes of pulmonary emphysema, there are others which produce a similar condition of the organ in a manner purely mechanical, by keeping the air-cells in a state of over-distention. Amongst these may be enumerated violent efforts of any kind (especially if often renewed) which cause the long-continued retention of the breath; repeated attacks of catarrh, bronchitis, asthma, or other diseases of the lungs or air-tubes, attended with difficulty of breathing, or distressing paroxysms of coughing.

The mechanism of the over-distention and rupture of the air-cells in these cases may be explained by the efforts which are constantly made by the powerful muscles of inspiration to introduce a fresh supply of air into the air-cells, while that which they contain is prevented from escaping by pellets of viscid mucus, spasmodic stricture of the bronchi, or turgescence of the bronchial membrane, according to the nature of the disease which produced the dyspnœa. In this way, the air-cells are kept in a state of over-distention, which the efforts that are made to evacuate them only tend to confirm and increase; and provided the obstruction is of some continuance, the dilated condition of the cells will be rendered permanent, or else their parietes will give way, and allow several cells to be thrown into one.

From this view of the matter, it will readily be understood why all diseases accompanied by protracted attacks of dyspnœa, or violent and often repeated paroxysms of coughing, are so constantly followed by emphysema, especially when occurring in persons advanced in life, in whom, as we have already explained, the lungs are peculiarly predisposed to this disease by the atrophy which their parenchymatous texture naturally undergoes at this period of life. But though the over-distention and rupture of the air-cells is in general a slow process produced by long repeated efforts to overcome an obstruction to the free exit of their contents, and is consequently the result, in most cases,

* *Andral*, Op. Cit.

of some chronic affections of the bronchial tubes, such as dry catarrh, asthma, or the congested state of the mucous membrane, so frequently produced by organic lesions of the heart; it may likewise be produced in a very short space of time, when the efforts made by the muscles of respiration are violent and constantly repeated. We have frequently found the lungs emphysematous in children dying of hooping-cough; and in one instance, where the hooping-cough had not lasted longer than three weeks, we saw several cells dilated to the size of garden-peas, of a globular form, and with their parietes evidently hypertrophied.

From whatever cause the emphysema proceeds, its constant effect is to render the portion of lung affected incapable of performing its respiratory functions, as is evident from the absence of respiratory murmur in the part during life, and the difficulty with which the air escapes from the overstrained or ruptured cells, even after the lung has been removed from the body. Moreover, as the emphysema is in almost every instance originally produced by turgescence of the bronchial membrane, or spasm of the circular fibres, so from an effect it generally becomes a cause, and maintains the disease by which it was originally excited. Accordingly we find that persons labouring under emphysema of the lung are particularly liable to attacks of asthma and bronchitis; and, as a consequence of the latter, and of the efforts made during respiration, to hypertrophy or dilatation of the heart. These intercurrent diseases usually occur only after long intervals during the first years of the disease; but when the complaint is of long standing, and the patient is far advanced in life, the paroxysms become more frequent and more severe; each succeeding attack increases the extent of the organic lesion and rupture of the pulmonary tissues, and sometimes interlobular emphysema then ensues.

From these observations it may be concluded that pulmonary emphysema in a moderate degree is not a disease of great severity, and that the principal danger is to be apprehended from the repeated attacks of bronchial disease by which the emphysematous condition of the lung was originally produced, and to which, in its turn, it seems to act as a predisposing cause.

From the pathology of emphysema, its diagnosis and treatment may be easily deduced. The dyspnœa, which is its most constant symptom, depends in a great measure on the extent of the disease, and the age and constitution of the individual. When the emphysema is rapidly formed, occupies an extensive portion of the lung, and occurs in a young plethoric subject,

through whose lungs a large quantity of blood is constantly in circulation, the dyspnœa which ensues may be so great as to terminate rapidly in asphyxia. But when, as is much more frequently the case, the emphysema commences slowly and proceeds gradually, the disease is in itself seldom attended with any immediate danger, although it renders the organ obnoxious to serious or even fatal effects from contingent pulmonary disease, which in a healthy lung might be borne with comparative impunity.

The difficulty of breathing which accompanies this disease is constant, but is aggravated by paroxysms, which are irregular both in the period of their return and their duration; it is likewise increased by all causes which usually increase dyspnœa from whatever source arising, such as the action of digestion, flatulence in the stomach or bowels, anxiety, living in elevated situations, strong exercise, running, or ascending a height, and above all by the supervention of an acute catarrh, to which, as already stated, persons affected with emphysema are peculiarly liable. Between the paroxysms there is no fever, and the pulse is generally regular. In slight cases the complexion and habit of body are little altered; but when the affection is more considerable, the skin usually assumes a dull earthy hue, with a slight shade of blue interspersed, and the lips become violet, thick, and swollen; there is likewise more or less of cough usually present, though it is sometimes so slight as to escape the notice of the patient: the expectoration generally consists of a greyish viscid mucus. These symptoms may, however, be considered as appertaining more properly to the disease of the bronchi, with which the emphysema is complicated, than to the emphysema itself.

When the emphysema is confined to one lung, or is much greater in one than in the other, the side most affected is perceptibly larger than the other, its intercostal spaces are wider, and it yields a clearer sound on percussion. If both sides are affected equally, the whole chest yields a very distinct sound, and, instead of its natural compressed shape, exhibits an almost round or globular outline, swelling out both before and behind: this conformation of the chest is sometimes so remarkable as to render the existence of the disease evident from simple inspection*.

The pathognomonic signs of this disease are furnished by a comparison of the indications yielded by percussion and auscultation; for while the sound elicited by percussing the chest over the part affected is perfectly clear, or even tympanitic, the

* *Laennec*, Op. Cit.

respiratory murmur is extremely indistinct, or even completely extinct, and in its place a slight sibilous râle only is heard, even during the forced inspirations that precede the act of coughing. These indications will be confirmed by the long continuance of the disorder, and the existence of an habitual dyspnœa, occasionally aggravated by asthmatic paroxysms.

When the disease is so far advanced as to form large vesicular cavities under the pleura, its presence may be recognised by a sound heard during inspiration or coughing, which is quite pathognomonic, and described by Laennec under the appropriate name of *the crepitous râle with large bubbles.* The sound of this râle he compares to that which would be produced by blowing into half-dried cellular membrane. We have repeatedly verified the accuracy of this comparison, and have uniformly found on dissection that the sound in question was produced either by an extreme state of vesicular emphysema, or by the interlobular form of the disease: we have often found these alterations on dissection in cases where this premonitory sound was never discovered.

There is another stethoscopic sound which Laennec describes as belonging exclusively to interlobular emphysema, but which we have heard on more than one occasion, in cases of vesicular emphysema where the ruptured air-cells projected above the surface of the lung. We allude to the "*friction of ascent and descent,*" as Laennec terms it, which is a sensation or sound of one or more bodies rubbing against the ribs, and rising and falling during the alternate movements of inspiration and expiration. The friction of ascent takes place during inspiration, the friction of descent accompanies expiration, and is much more constantly audible than the other sound. Most commonly the friction seems to take place against the costal pleura; at other times it seems to have its site against the diaphragm or mediastinum, or between the lobes of the lungs. These sounds are sometimes accompanied by a crepitation perceptible to the hand.

Treatment.—As pulmonary emphysema must, in almost every instance, be regarded as an *accident*, caused by some prior disease of the lung, the first indication should obviously be to remove the original disease, as the most effectual means of removing its effect, or, at least, of preventing its farther extension. This is, perhaps, as much as we can reasonably hope to accomplish in this case, as it is difficult to conceive how any method of treatment should restore that portion of lung which has once become emphysematous to its original healthy condition. M. Laennec, however, is of opinion that this affection

should not be considered as altogether incurable; and that, if we can diminish the intensity of the cause which keeps up the habitual distention of the cells, we may, in the end, hope that these will be actually lessened in volume. With this view the cause of the emphysema should be combated by prompt and active treatment, and the patient should be made to abstain from all the ordinary exciting causes of dyspnœa, as they not only produce present distress, but likewise keep up the over-distention of the cells, and consequently increase the extent of the emphysema.

It has already been stated that emphysema, in a moderate degree, is not a disease of great severity, and that it is from the supervention of attacks of asthma or bronchitis that the principal distress and danger are to be apprehended. Every precaution should, therefore, be adopted to remove these affections and prevent their recurrence.

To detail the treatment of these diseases here would be to repeat what has been stated in other parts of this work: we therefore refer the reader to the articles Asthma, Bronchitis, and Catarrh, for all the information that can be obtained on the subject in the present state of our experience.

Laennec recommends frictions with oil as useful in diminishing the susceptibility to be effected with catarrh; but a more effectual method of acomplishing this object is by sponging the chest every morning with vinegar and water, and afterwards dry-rubbing the part with flannel or a flesh-brush, as recommended in Asthma. In the case of pallid cachectic patients, the subcarbonate of iron has occasionally seemed to have a similar effect, and to tend at the same time to diminish the congestion of the mucous membrane, and also the spasmodic stricture of the bronchi. It is also of importance to attend to the state of the digestive organs, as experience has fully proved that irritation of the bronchial membrane is very often a sympathetic affection depending upon irritation of the stomach. Whatever, therefore, is improper for a dyspeptic patient should be avoided by those who labour under emphysema of the lungs. Warm clothing in all cases of delicate mucous membranes is particularly necessary, and flannel should be worn next the skin during the day; the lower extremities should be kept especially warm, and other necessary precautions adopted to guard against the cold of the winter months. We have known many persons affected with emphysema of the lungs, and that to a very considerable extent, whose breathing was quite good during the summer months, but who dreaded the approach of winter as the never-failing harbinger of their sufferings. For such cases the only alternative is to spend the winter in a more congenial climate. Indeed, there

is, perhaps, no class of complaints in which the beneficial effects of change of air and climate are more decidedly manifested than in those chronic cases of pulmonary emphysema complicated with great susceptibility of irritation in the mucous membranes of the air-passages.—(See CLIMATE.)

II. *Interlobular Emphysema.*—This, as its name implies, consists in an effusion of air into the cellular tissue, which intersects the pulmonary parenchyma, and divides each lobe into a number of distinct lobules. This form of pulmonary emphysema may be easily recognized in the dead body, by the transparency of the interlobular partitions, which contrast strongly with the denser structure of the intervening portions of parenchyma. Instead of the scarcely perceptible thinness which they exhibit in the natural state, these partitions, in a state of emphysema, are distended to the breadth of two or three lines, or even of an inch in some cases. They are generally widest at the surface of the lung, where the distention of their delicate cells bears an apt resemblance to a string of glass beads. Sometimes the emphysema is confined to two or three interlobular partitions, which run parallel to each other from the margin of the lung; in some cases these parallel bands are intersected by transverse partitions likewise in a state of emphysema, and the lobules intercepted between these intersecting partitions are thus completely insulated, being surrounded on all sides by transparent cellular tissue in a state of emphysema.

When the disease continues to extend, the air passes from one interlobular partition to another until it reaches the root of the lung, from whence it soon extends to the mediastinum, and thence spreads all over the cellular tissue of the trunk.—(See EMPHYSEMA.)

It sometimes happens in this form of the disease that the air escapes into the cellular tissue which connects the pleura to the lung; in this way one or more bubbles of air are formed immediately under the pleura, and may be pushed along the surface of the lung by the finger,—by which circumstance they may be distinguished from the vesicles that are formed in the true pulmonary emphysema, as the latter are prevented from being displaced in this way by their interlobular partitions.

The formation of interlobular emphysema is explained by M. Laennec as necessarily depending on a rupture of some of the air-cells, and the consequent extravasation of the air contained in them into the cellular substance surrounding the lobules. It must, however, be admitted that, even in the most extensive cases of this disease, no such rupture has ever been detected, and that the rupture of several cells constantly takes place, and yet

not a particle of air finds its way into the interlobular partitions; nay, that these partitions may themselves be lacerated, and yet no interlobular emphysema be produced. Farther observations are required to elucidate this subject.

This form of emphysema is as rare as the other is common. It is very seldom combined with the true pulmonary emphysema; and in the great majority of cases seems to result from some sudden and violent effort of the respiratory muscles, as in the forcing pains of childbirth, in raising heavy weights, in hooping-cough, &c. Notwithstanding the greater density of their lungs, children appear to be more liable to this disease than adults*.

The only symptom from which the existence of this disease can be suspected, is the sudden supervention of dyspnœa after any violent effort of the lungs. Its stethoscopic signs are the dry crepitous râle with large bubbles, and the friction of ascent and descent already described. These sounds, it will be recollected, are likewise common to the vesicular form of emphysema when the pleura is projected by several air-cells thrown into one; perhaps the only method of distinguishing between these cases is by the *sudden* supervention of the dyspnœa and of the stethoscopic signs in the interlobular form of the disease: fortunately, however, the diagnosis is not a matter of much practical importance, as in the slighter cases (in which alone any ambiguity can exist) the air appears to be always absorbed, and the interlobular partitions gradually return to their natural state. When the aerial infiltration extends to the external parts, the difficulty of diagnosis is at once removed, and the disease may be treated on the principles already stated in the preceding article on general emphysema.

THE VETERINARIAN, NOVEMBER 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

Our leading article will be a kind of omnium gatherum—a collection of scraps—not wholly uninteresting or uninstructive—picked up in a late journey undertaken by one of us. For the greater part of them we are indebted to a veterinary friend, Mr. Dick, who deservedly ranks high in his profession; who, for many a year has *honourably* and successfully laboured in the cause of veterinary science, and who will soon have to urge yet stronger claims on our esteem and gratitude.

* Laennec.

The first is a remarkably clear description, by a non-professional man, of an accident of rare occurrence, and of which no author, that we are aware of, speaks,—"Discharge of Urine from the Urachus." When superintending the parturition of the greater or smaller quadrupeds, we give ourselves very little concern about the umbilical cord. The act of parturition is generally performed without the assistance of man. The mare seems, as it were, studiously to select the period when this natural process shall be accomplished in secrecy and darkness; but when untoward circumstances render our aid necessary, we treat the umbilical cord with a want of ceremony at which the human practitioner would stand aghast. No ligature is dreamed of, in whatever way the cord may be ruptured or divided. Nature, who proportions her care to the need of all, has bestowed such elasticity on the vessels of the cord, that hæmorrhage rarely or never follows—in fact, that often scarcely more than a few drops of blood escapes.

The urachus likewise (the canal through which the fœtal urine passes), as suddenly collapses, and that fluid, immediately after birth, wholly flows through its new and proper canal, the urethra. No case of the contrary is on record in the history of quadruped pathology. The human practitioner, indeed, speaks of the urine being discharged from strange outlets, but in a totally different way; for it does not continue to flow through its old passage, but after its secretion from the kidneys it is absorbed, and takes some marvellously erratic course in order to be ejected from the system. This is a different affair. The owner of the colt shall speak for himself.

"Sir,—I will take it as a particular favour if you will be so good as to write me your opinion upon the following case. A very valuable work-mare foaled twelve days ago. Every thing went right at the time of foaling, but the foal (a colt) was very lean and weak; however, it took its milk well, and got better, till it was four or five days old, when it appeared very stiff upon its limbs, round in the back, and walking with difficulty; and also having great difficulty in rising and lying down, and having a desire to lie almost constantly upon the ground, unless made to rise; and in this way it has continued ever since, though apparently relishing its milk, of which the mare has abundance. Its

hocks also swelled, and had the appearance of thoroughpins, but these, I think, are better.

"A few days ago, my groom informed me that the foal *made water from its navel.* Upon examination, I found that it staled in the proper way, but the navel-string is, as it were, cut off close up to its belly, the end just appearing through the skin, and having the appearance of having been constantly in water;—that is to say, *wet,* and *white-looking;* and, when the animal rises or walks, there is a liquid, much resembling its urine, dropping from it in considerable quantity. The foal appears much drawn up in its carcass, and has the same difficulty in walking, and, if hurried, moves both hind legs together. What I wish to know is, if you think the discharge ought to be stopped, or can be so, or in what manner, and any thing else your skill and experience may suggest."

The treatment of such a case is very simple, and quite effectual. Our friend advised that the budding-iron should be applied to the orifice of the urachus. The passage was immediately and perfectly closed, and the whole of the urine discharged through the urethra. Our old pupil, Mr. Bunnell, of Liverpool, told us, that he was in the course of one day consulted respecting two cases of open urachus. This was singular enough, for they were the only two cases that had occurred in his practice.

Our second scrap has reference to veterinary jurisprudence. The case is very well drawn up, and, although as a general principle, there would not seem to be much difficulty in giving the right answer, yet we can conceive of circumstances that would render the matter a little puzzling. We will not enter into it, but propose it as a problem for some of our brethren, and, perhaps, the younger ones, to execute their ingenuity upon.

"Mr. A. B., who was advised to take *two* hours' exercise on horseback in the forenoon, applied to a horse-hirer (lender) for a quiet and handsome animal; and several horses being shewn to him, he made choice of a mare, which, on trial, he hired.

A. B. then rode the mare *daily two* hours for *two* weeks and *four* days, but never travelled more than twelve miles at any time. During the *second* week the mare was *twice* allowed to gallop about 400 or 500 yards at most, after which she was rid-

den *two* hours *daily* as usual, for at least *six* days; but on the seventh day, the ostler stated the mare had sprung a curb in the left hind leg, which the hirer imputed to A. B., alleging it had been occasioned by hard riding. Now A. B. will make oath that, with the exception of the two occasions mentioned, the mare never was allowed to go quicker than an ordinary *canter* upon the turnpike road, during the *two* weeks and *four* days he had her out, and the mare was ridden for *two* hours daily at least *six* days after galloping as abovementioned.

The ostler stated, that he had blistered the mare the morning after A. B. had her last out, without consulting A. B., and which he stated had been repeated once or twice without effect, and that the mare will likely require to be fired.

The hirer now demands £10 from A. B. for the injury he alleges the mare has received by improper treatment, stating the mare to be worth £45, and that her keep will amount to £10 till she has recovered. But as A. B. is conscious that he did not treat the mare improperly, he wishes to know the opinion of a veterinary surgeon upon the above facts, and whether the sprung curb is attributable to A. B., or if he could be made liable for it in a court of law."

The third scrap likewise has relation to veterinary jurisprudence, and was not a little annoying to the practitioner. He acted decidedly and rightly; and we wish that we were at liberty to give him the meed of praise which is his due.

A horse had very bad mange, and, at the same time, ophthalmia. The cutaneous disease annoyed him sadly, and he gnawed and rubbed himself without intermission, and would have very seriously blemished himself. As affording temporary relief at least the practitioner determined to bleed him. It was an awkward and a resolute beast, but the operation was well performed, and the neck properly pinned up. Some hours afterwards, the attendance of the surgeon was suddenly required, for "the horse was dying." He immediately went, and found the blood spouting from the neck at a terrible rate, and the stable deluged with gore. The horse had rubbed or torn the pin out, and the edges of the wound were so lacerated and ragged, that it was a matter of impossibility, and especially with such a beast, securely to close

the wound by another pin, or by common means. The blood continued to flow; danger was pressing, at least the danger of debility, from which the horse would be long in recovering after the loss of so unusual a quantity of blood. What was to be done? He was far from home. Ere he could go and return, the mischief would be done. The only hope was in the cautery, and that immediately applied.

He determined to avail himself of the best instrument he could get. He could see no difference between one piece of rounded iron and another. He used the *poker* instead of the *budding iron*, and staunched the blood at once.

Every thing went on well. The neck suppurated, healed: when suddenly tetanus appeared, bade defiance to all remedial means, and the horse died.

The owner was dissatisfied. The poker-business, for which every one of our readers would have commended the promptitude and skill of the practitioner, dwelled on his mind. He connected it with the death of the horse, and he called on the surgeon. A long conversation ensued; he was not perfectly unreasonable, and he went away, if not altogether reconciled, yet convinced that there was not so much blame imputable to the veterinarian.

Unfortunately, however, he went to the riding-school, where all horse-matters are discussed, and the directors of which are usually sufficiently wise, in their own opinion, and there his mind was once more poisoned. His horse was murdered, and the veterinary surgeon was responsible. He returned to his lodgings, and he wrote the following letter to our practitioner:—

"Sir,—After seeing you this morning, I had a full conversation with Mr. C., regarding the circumstances attending the death of my horse ————. From what he has stated to me on the subject, I cannot entertain the slightest doubt in my mind; nor do I perceive any difficulty in establishing the fact to the conviction of any other person, that ———— fell a sacrifice to the operation of bleeding, which took place under your direction and charge in my absence. In this situation I have to request that you state to me, in an answer to this letter, what you have to propose to me on this unfortunate subject, as you must be aware you are responsible to me for the loss, and that as early as

possible. You may send your answer to Mr. F.'s care, as I go out of town for a few days to-morrow morning. I am, sir, &c."

Our friend was not the man tamely to submit to any thing like this; and the following reply was hastily penned and dispatched.

——, ——, 18—

"Sir,—I have this moment received your note, dated Saturday, the 7th, at the contents of which I am more than surprised. In it you say, that from what Mr. C. had stated, you have no doubt but that I had made a sacrifice of your horse; or, at least, that he had died in consequence of the operation of bleeding; and that you consider me responsible to you for his loss, and you call on me to make you a proposition, without mentioning what proposition you want, or on what grounds you make such a demand, that I might have had an opportunity of inquiring whether those grounds are true or false. But is it possible that you can, for a moment, suppose that I must be accountable to you or any other person for the successful termination of every operation that I have, or may yet have to perform? the thing is absurd. Why not make a surgeon accountable for the death of his patient after the amputation of a limb? Nay, why not try him for murder or manslaughter when his patient dies after the operation of bleeding? Was ever such a proposition advanced? Was it ever before imagined that physicians, surgeons, or veterinary surgeons are to be made accountable for the death of their patients, after they had done every thing in their power to save them. Had I not performed the operation myself; had it not been performed in a proper manner; had I not paid every attention to your horse, both at the time of the operation, and also after the animal had repeatedly injured the part, by rubbing it on the manger and scratching it with his hind foot, from the itching of the mange, with which his whole body, and with which his head and neck were in particular affected; had he not been treated, in short, in every manner as I would have treated my own horse, nay, even with more care than I would have bestowed on my own, in consequence of your absence, and the trust you had put in me—I might have expected reflections in consequence of your horse's death; but after the operation was performed as it ought to have

been done (and that it was performed in a masterly manner I can easily prove, notwithstanding the refractory disposition of the animal, which you well know); after I had done it on a former occasion in your presence, to your entire satisfaction (and I will not yield on any occasion to any in my profession in performing either that or any other operation); after having paid every attention to your horse, nay, much more than ordinary attention, and having treated him in every respect as he ought to have been treated, I did not expect to receive such a reward for my trouble; far less did I ever suppose that I should be thought responsible for his loss. I am certainly extremely sorry for your loss, in every respect; but do not consider myself in any way accountable for it, and cannot conceive why I should be called upon to make it up. I must here remark, that I do not consider you have sustained a great loss by his death, as he was previously rendered useless by the loss of his eyesight; and surely I cannot be considered as the cause of his blindness. But, perhaps, Mr. C. can account for that as well as for the cause of his death much better than I can do. For my part, I should wish to ask, why the disease, locked-jaw, of which the horse died, should arise from one only of the diseases with which he was previously affected, namely mange, or inflammation of the eyes, or the operation of bleeding (the wound of which was healed, or at least closed, previous to the attack of lock-jaw), in preference to the other; or whether they might not all combine in producing the disease? or whether it might not arise from some other cause, totally distinct from all these? I shall now conclude, by remarking, that I am convinced that this misunderstanding has entirely arisen from some mistatement of facts; and that I shall with pleasure meet you and my accusers, face to face; when I have no doubt of being able to clear myself of every imputation they may have laid to my charge." "I am, &c."

He was not content with this. He went to the riding-school. He demanded from Mr. —— the substance of the conversation that had taken place between him and the owner of the horse. He taxed him with inexcusable intermeddling, and disgraceful ignorance; and he got from him the hesitating avowal, that a superior officer in the school had more to do with it than he had. Our practitioner attacked this second person. *He* threw the

blame on the colonel. The colonel was sought out, and was sternly and indignantly questioned, and dared to the proof. A veterinary surgeon was then implicated, who had insinuated that the operation of bleeding was not performed properly, and, indeed, that it was a case that did not require bleeding. He was sought out; he was found with a great deal of difficulty, for he long kept out of sight; but he *was* found, and brought very seriously to book; and the consequence was, that the whole party were ashamed of the affair, and our veterinarian heard no more about the matter, except that, a year or two afterwards, he learned that his straightforward and manly conduct had gained him the friendship of the gentleman referred to in the owner's letter, a man of high character and great influence, and whose friendship and patronage were honourable, as well as otherwise valuable to the possessor.

One or two lessons may be learned from this. Extreme circumstances alone can justify any departure from the regular and professional way of going to work. A sensible man would give our friend credit for the conversion of a common domestic utensil into a valuable surgical instrument:—but, after all, a poker was not a budding-iron; and the majority of people have not all the discrimination they should have, and our practitioner had well nigh suffered severely for his promptitude and skill. His uncompromising defence of that which his conscience told him was right, alone saved him. From proper and honourable responsibility he shrunk not; but he was not to be clamoured down, either by the supposed injured person, or the nonsensical intermeddlers in the business. We have again and again urged on practitioners the cultivation, not of a litigious, but of a firm and unshrinking spirit. Let there be a thorough acquaintance with our business, an honourable performance of our duty to our employer; and then comes our duty to our brethren, namely, to oppose ourselves to those indignities which are too frequently heaped upon our yet undervalued profession. But the limits of our leader are transgressed. We have more in our budget.

Review.

Quid sit pulchrum, quid turpe, quid utile, quid non.—Hor.

Remarks on the Condition of Hunters, &c. By Nimrod.

[Continued from page 590.]

From an account of the evils occasioned to the body by a "summer's run at grass," Nimrod proceeds with his subject "as regards the state of the legs and feet of hunters." His words thereon are—"I have no hesitation in saying that the idea of a summer's run at grass, being beneficial to the legs of a hunter, is a most erroneous one; and that with respect to the feet, they may, by proper management in the stable or loose house, derive all those advantages they would receive from grass." In confirmation of which, he gives us an account of the result of an experiment he made upon *two* hunters, whose legs were "equally round, full, and knocked about," one of which was turned to grass, the other kept in a loose box. And furthermore, he considers the *exercise* hunters take at grass of their own natural accord as being injurious, and that we run great risk "of injuring their legs by the work we are obliged to give them, when heavy, to get rid of the load of flesh they have accumulated at grass." And that we ought to take into the account "the great stress which is laid upon the sinews of the fore-legs of most hunters when in the act of grazing;" and also "the bad effects which arise from the constant stamping of their feet to get rid of the flies."

"My most essential objection, however, to turning hunters out to grass, is, not so much on account of their legs and feet—for without good legs and feet, horses may go very well over a country—but it is *the destruction of their condition* which is so detrimental to them, for it is impossible that it can be restored by the time they are required to go into the field again."

Nimrod's treatment of hunters in the summer consists in putting the animal into a loose box; by degrees diminishing his corn to two feeds a-day; giving him at first an hour's walking exercise every morning, as usual; then giving him two doses of physic; and subsequently discontinuing the exercise. Not that he is averse to turning hunters out at all in the summer months "So far from being averse to it (he tells us), I would strongly recommend it, under favourable circumstances. In case of having recourse to blistering, it is most serviceable; and after firing, almost necessary. But, then, they should be turned out only *at night*, and into a place where there is but little grass, and have two, if not three feeds of corn a-day, but nothing else to eat till they go out, unless it be a few vetches, for four or five days

at a time, when they are young and tender, in the months of May or June; but this should not be repeated more than three or four times, as they tend to make horses very foul, and when in pod are most injurious to them. It is not every one who keeps hunters that has paddocks to turn them into; nor, indeed, do they fall to the lot of many: but when they are to be had, the advantage is very great, as a horse is safe in them, and the smaller they are, within reason, the better; for it is not the grass that we want, but the exercise and the moisture of the ground for their feet, and the bracing effects of the pure air. If only one or two hunters are turned into a large paddock, and the grass grows upon them, some sheep should be put in to keep it down. Their bite also sweetens the herbage, and makes it more nutritious; but paddocks should never be mown. Paddocks, however, are always to be made, and at a trifling expense. A small piece of ground, say thirty square yards, is sufficient. Let it be hurdled round, and then lined with faggots, reared up from seven to eight feet high. A stallion may be kept in these places with the greatest safety as to his breaking out of them, for he will never attempt it so long as he cannot see through or over his fence. The faggots, so far from being worse, are better for the use they are put to, and they are within the reach of every one who resides in the country, at five shillings a score, if he do not grow them himself. The hurdle that lets the horse in and out should often be changed, and then he will be still less inclined to attempt to break out."

"However beneficial this turning out a horse in the summer may be, it is comparatively trifling with the advantages that are to be reaped by a winter's run. I have seen horses, as it were, *renovated* in their constitution, by being turned out for a winter; and as far as relates to their legs and feet, it is, I think, the *only* time when any thing effectual can be done for them, when the injury has been considerable."

These pithy and valuable extracts, at the same time that they serve to expose our author's views in regard to summering the hunter, demonstrate a sagacity and an experience on the subject no less worthy of the admiration of the professional man than of the sportsman himself. The leading consideration in summering the hunter is to maintain his condition; or, rather, we would say, to guard against his losing that which we know both by education as medical men, and experience as sportsmen, once lost, will require much time and pains to be re-acquired. Change of food is necessarily productive, in the animal constitution, of alteration of structure: though parts cannot be said to change their nature under this influence, yet do they become greatly altered both in texture and in tone.

Exercise or exertion is likewise attended with similar results. The fat ox prepared for the butcher is a very different animal, when examined by the knife of the anatomist, from the ox that labours daily in his yoke, even although both be fed alike: proving, that exercise or exertion of itself has much to do with the constitution of the animal machine. In fact, Nature, ever provident, but never superfluous, to use a vulgar adage, "fits the back to the burden." To do this, she requires material to work with. Should the burden required to be borne be great—the labour to be done heavy—the body must be furnished with such food as is susceptible of conversion into materials of strength and durability: at the same time, the bodily powers must be such as are equivalent to this process of conversion. A state of obesity results from good feeding, combined with rest; a state of bodily strength, and aptitude for exertion, results from good feeding, combined with regular and continued exercise. In the one case, the alimentary material is expended in the production of fat; in the other, it is consumed in the augmentation and invigoration of the physical and vital faculties. The pursuance of this subject would lead us far away from the road of the sportsman, as well as to the introduction of matter not, perhaps, altogether applicable on the present occasion. We shall, therefore, proceed to make a practical comment or two on the innovations proposed by Nimrod.

Although our author modestly disclaims being the *originator* of this new "system," I have had an opportunity of hearing of, or seeing, numerous studs of hunters summered in this manner, belonging to sportsmen of the very first order, *who adopted it long before I put pen to paper on the subject.* Among others, I called on Mr. Hudson, the Earl of Plymouth's groom, whose opinion, as one of the best hunting grooms in England, I was anxious to obtain. I found that he carried the object of condition still further than I do, as he informed me that all those horses of his lordship's which were fresh (not *flesh*) on their legs were walked out for an hour or two every morning during the summer. It appeared that Mr. Hudson had never heard of my (Nimrod's) letters; but when we came to compare notes on the subject of the condition of hunters, I could almost have persuaded myself that he had been the author of them, instead of myself, so exactly did our sentiments tally. With respect, however, to giving hunters walking exercise during the summer, he there goes a step beyond me; but, on mature reflection, I am convinced he is right. 'When horses are fresh, and well on their legs,' said Mr. Hudson, 'the advantage of always keeping them going in this gentle way is incalculable at the commencement of the season. It invigorates

their whole frame, strengthens the muscles, preserves their bowels free, and keeps them from getting out of shape and form."

Although, on the whole, we subscribe most cordially to this improved plan of summering the hunter, yet do we feel great disinclination to depriving our hard-working servant of that indulgence and sweet enjoyment which the bountiful hand of nature prepared for him at the very time of the year that his labours cease to be required: there is, we feel assured, after all, a virtue in *Dr. Green* as a constitutional refresher, and a virtue in cold air as a leg-and-feet restorer, which we ought never to disregard or hold in light estimation; and on this account, we would use every endeavour to provide the accommodation of a paddock of the description recommended by our author. We should wish our laid-up hunters to have a plentiful supply of spring-grass, not omitting the *two feeds of corn:* at the same time, we should like to have a moist situation for their feet, a free and open air overhead for them to breathe, with plenty of good water, and ample shelter from the heat or inclemency of the weather. The loss of condition so justly complained of by Nimrod, consequent on the old mode of procedure, has arisen from the deprivation of a nutritious diet; and the substitution for it of one, which, though of a wholesome and even more natural kind, yet, to such a high-fed animal, cannot but prove lowering and debilitative, and insufficient of itself, even in a state of repose, to keep up any such condition as he has acquired in the stable. Not that we are to understand by this, that a hunter is to be kept wound up to the mark all the summer during his interval of repose—so far from it, every nerve and fibre in his body should be unbraced and slackened: his circulation and respiration should be set quiet; his digestion should be made easy; his secretions and excretions should be brought down to their natural standard; in fine, every animal and vital function should now enjoy repose, and yet not one of them should be suffered to languish from the want of any accustomed stimulus, either in the shape of food or bodily comfort. Turning a horse out of a warm stable, deprived of clothing and of highly nutritive and invigorating provender, to shiver all day long under the influence of a north-easter, even in the month of May—feeding upon but a scanty bite of spring-grass, although it may not directly occasion disease—is a mode of depriving a hunter of his condition only to be surpassed by exposing him subsequently to a meridian July sun, surrounded by a host of flies, up to his knees in pasture, become too old or too dry and harsh to create in him much appetite for any more of it. Weather permitting and grass growing, we should say, hunters can hardly be turned out too soon after the conclusion of their season of labour; and

instead of their being taken up the first week in August, let them be stabled the first week in July. This will give a month more to prepare them for their next season; and, when we consider that they have not been lowered or weakened in their bodies, only *unbraced* for the time being, it will be hard if we cannot manage to get them into very tolerable hunting plight again by November, there being no *good* occasion for them in October.

If there be any difference of opinion between our friend Nimrod and ourselves on this subject, it is that we are greater sticklers for *turning out* for spring-grass; for cold air; for water at command; for liberty: at the same time we repeat, we would have all this within limits. We are convinced that hunters may do their legs, and their bodies too, a vast deal of harm, by playing and scampering about in large extended pastures. On this account, we particularly object to *parks;* wherein they not only have too ample room to stray away, but meet with many strange companions, with whom they become induced to frisk and gallop about a great deal more, probably, than they would with those with whom they had been accustomed to be stabled.

Effects of Condition—The Stable, and Stable Management.

A horse out of condition and a horse in condition are in nature two different animals. As Nimrod happily imprints it upon the mind—"*in personâ,* he is the same; *in re,* quite another being: in the one state, being weak and powerless; in the other, equal to greater exertion of power and speed combined, than any other animal which the hand of nature has formed."

"Condition is the work of time, and can only be acquired by slow degrees; it being in vain to expect it on other terms than as the result of a long course of preparations, *followed by severe work.* In a clear fortnight after he has had his last dose of physic, he should begin to do some work, for without it no progress can be made. For the first month, this should consist of long protracted exercise rather than what is called "good work." He should be kept out of his stable for three or four hours in the course of the day; and if ridden gently across a country, and now and then with a pack of harriers (weather permitting), it will greatly promote his condition, by hardening his flesh, increasing his strength, and improving his wind. At this time, the use of *alteratives* is indispensable. By their mild and gradual impression, a healthy action of the bowels is obtained, and thereby what in stable language is termed 'fog,' (but which might more properly be termed debility) is got rid of, and the general appearance and condition of the animal much improved. Indeed, without the use of alterative medicines—exclusively of physic—no

hunter can be got into blooming condition; that is to say, to look well in his skin, to dry immediately after a sweat, and to be in full vigour of body. Of these medicines there are several sorts in use; but the diuretic and diaphoretic are, in my opinion, the best."—"Antimony forms the principal diaphoretic; and from its weight, a sufficient quantity—one ounce divided into four parts,—may be given him every day in his corn for eight days gether; but this should be given when the weather is warm, or danger from catching cold may arise from the pores of the skin being relaxed."—"All this, however, without a good stable, and good stable management is of no avail. Diet, therefore, is a most essential point to be attended to in promoting and preserving the condition of a horse; for, as evacuation is the cure, repletion is the cause of disease. Horses in a state of nature are subject to few disorders. As has been elegantly observed, 'they contract no disease from unseasonable indulgence or inordinate revellings: the pure stream their drink, the simple herb their repast; neither care disturbs their sleep, nor passion inflames their rest.' The state, however, in which we keep them for the different purposes to which we apply them, is strangely at variance with this temperate and natural state; and it is only by constant recourse to physic and exercise, that we can preserve their health under such trying circumstances."

"We are told, that in former times, before wheat was found out, oats fed the vassal and his lord, as they now do many a nabob, squire, and Scottish laird. Formerly wheat was given to race horses as more nutritious than oats; but now the latter form the chief food for all descriptions of horses. Beans, however, have been for some years allowed to hunters, and when given with discretion are most beneficial. I remember hearing Mr. Hoare exclaim, as his hounds were settling to their fox, and he expected a good run, 'Now we shall see what gentlemen's horses eat old oats, and what eat new.' I am inclined to think that this distinction may be applied to those horses that eat beans, and those that eat none; for they help to bring them home at the end of a long day, and support their strength in the run. They are said to dispose the constitution to inflammatory complaints, which I believe to be the case, when given in large quantities to horses of plethoric habits, and whose work is moderate; but when given in proper quantities are most nutritious and wholesome. Two single handfuls in each feed of corn is the allowance for a hunter who is fed (as he ought to be) five times a-day."—"About eight pounds (of hay) a-day, one truss per week, is considered sufficient for a hunter that will eat five feeds of corn per day. A larger quantity of hay is found to in-

crease the size, consequently the weight of the carcass; to injure the wind, and destroy the digestive powers. Among the brute creation we find extraordinary instances of long abstinence, but the horse is not of that tribe. He is a voracious animal, and requires a daily supply of food: nevertheless it is advisable that his appetite should never be cloyed, but that he should always appear eager for his food on his groom coming to him after being shut up his regular time; and if one handful of good hay be found in his rack, he should have no more till next stable time, when his appetite will be sharp. If given to eat his straw, the setting muzzle in this case must be made use of."

"In consequence of the lateness of the hour of meeting with hounds, now seldom before eleven o'clock, hunters do not require so much food as they formerly did when out a much longer time from their stables; and there is no doubt, but at the pace the hounds now go, an empty stomach is necessary, or why put the muzzle on the race-horse? In Leicestershire, this short allowance of hay has been carried to a great extreme; but a full belly will not do for that country; and amongst the Meltonians, horses are not required to come out often, owing to their generally having large studs."

"Hunters are not always to be fed alike. Allowance should be made for the distance to covert; for, when a horse has got to go twelve or fourteen miles in the morning to meet hounds, he may be allowed a little more hay overnight, than if he had but four or five, as he will empty his stomach on the road, and there is reason to expect a long day. As to whether a hunter should have any water on the morning of hunting, that is a point not so much considered as it ought to be, for we should be guided by his constitution. If he is apt to scour, and throw off his meat on the road, I should recommend his having none; but if, on the other hand, he holds his meat well in him, has some distance to go, and is not called on before ten or eleven o'clock in the day, he should have six or eight swallows, or go-downs as the grooms call them, between five and six in the morning. This quantity of water, or more, is always given to a race-horse on the day he runs his race, as it makes him enjoy his food, and digest it afterwards, and it is all absorbed by the time he is called on to run. Nothing is so apt to make horses scour as change of food and water; for which reason it is advisable that a hunter should go from his own stable to meet hounds, if the distance does not exceed fifteen or sixteen miles, rather than sleep out. If, however, he does sleep out, and is affected by the change, he should be watered before he leaves home, and have very little where he sleeps, which will in some measure counteract the evil."

We hope our readers will not find fault with us for the length of these extracts. They contain facts and truths, deduced from observation and experience, with which every veterinarian ought to be well acquainted. In risking the want of this practical sporting knowledge, he risks with one of his best customers—the fox-hunter—no less than his medical reputation: while, on the other hand, possessed of it, his employer will give him implicit credit for being a good veterinary practitioner. We have hardly a remark to make farther on these valuable extracts; unless it be, that we do not find our own mind so full of apprehensions of giving water on the morning of the hunting day, as sportsmen in general are known to be. If given—to double, or even treble the quantity prescribed by our author—at the hour and under the circumstances he particularizes, we should not ourselves look for any ill effects from it, knowing, as we do, how speedily the greater part of it will pass off through the kidneys. Five or six hours is a long interval for an animal of the nature of a horse to "go without any thing:" we are inclined to think that he must feel somewhat languid from the fast by the time he is "called upon" to commence his day's work.

The Stable, and Stable Management.

"I now come to the corner-stone of all condition in horses—stable, and stable management."

"Horses are purchased in all places and at all times, but condition is not to be purchased with them; for which reason he who wants to increase his stud, should always buy his horses in the spring of the year, having then the summer before him, in the course of which, if the animal is a sound one, his condition can be accomplished."

There are likewise other reasons. This being the season at which hunting ceases, hunters become more plentiful in the market, and cheaper than at other periods of the year: the sales at Tattersall's give a greater choice also to purchasers. In August and September every cockney is running about in search of "an hunter" for the "ensuing season:" an old crafty sportsman will look about him in the spring.

"As no workman can work without good tools, so no groom, however good, can get a horse into condition without a good stable. In the first place, it must be dry; in the next, it must be warm. I am aware that what I have to say on this subject will be objected to by some of the old and slow ones, who preach against the danger of hot stables; but, for my own part, experience has led me to declare, that, so far from ever having witnessed the ill effects of a hot stable, I never saw a hunter

in good condition out of a cold one. Nay, I will go further, and assert, that a horse, which no exertions of the groom can get to look and be well in a cold stable in the winter, shall, on his being removed into a warm one, be in good condition in a month!" "Stop up every crevice in the stable, taking care only that there be a pipe or two to let the foul air out. Never mind the fresh air, enough of that will find its way through the key-hole; but let there be vent for that which is fœtid."

There was a time when we set our faces completely against *a warm stable*. We imbibed the antipathy from our *alma mater* —the Veterinary College. Our experience has taught us, that in this *unqualified* condemnation we were in error;—that to get a horse into "blooming condition," a certain degree of heat is as essential to him as good food: a genial warmth must be kept up in his habitation, without which (native of a warm climate, as the horse by nature is), like the plants out of the hot-house, he will never reach the same state of perfection with those within the hot-house. What single sign have we more truly indicative of the good health and kindliness of the animal, than the smooth, silken, glossy condition of his coat? And can this be acquired without warmth? Is not one the natural concomitant of the other? How all this is effected through the agency of heat we are not about to inquire in this place; all that we feel desirous to assert is, that in relation to condition our own medical experience fully confirms what our friend Nimrod has learnt from sheer practice in the hunting stable.

"I shall therefore conclude my remarks on this part of my subject, with observing, that if it be possible to get a horse to live well in a *cold* stable, all the grooming on earth would never get him to look well in a *damp* one. A horse is all but a barometer, being most sensibly affected by change of weather. As to hot stables being prejudicial to a horse's eyes or lungs, I will not admit it to be the case, provided there be vent for the foul air to escape, and no accumulation of foul litter be suffered to remain. It is that which does the mischief; and all grooms who suffer a horse's bed to become foul, or a heap of damp or wet litter to remain in the stable, because they are too idle to take it outside the door, ought to be kicked out of it."

There is a passage in Mr. Percivall's work which bears so directly upon this point (so cruelly dogmatically insisted on by our worthy author), that we cannot refrain from citing it. It runs thus:—

"As heat is a pretty constant constituent of a poisonous atmosphere, it appears, at first view, difficult to say, whether it be to one or to the other that we should ascribe the excitation of

disease: from numerous facts and observations, however, collected by practitioners who have paid attention to this subject, it would appear, that pneumonia is rather the effect of heat than of animal poison. There have been situations occupied by great numbers of horses, in which those poisonous agents may be said to have been present without the co-operation of heat, and where, though the prevalence of other diseases sufficiently evinced their morbid influence, pneumonia was hardly ever seen."

Hot and cold stables—treatment after a severe day—
Clothing—hay and water—cleanliness—over-reaching.

"There is in some horses a strong disposition to get flesh and become plethoric, which accounts for their becoming foul so much sooner than others, and requiring so much more work to prepare them for the field or the starting-post. When Goosander, the dam of Sailor, winner of the Derby in 1820, was in training, they were obliged to stop and sweat her, the fourth day, on a journey, such was her aptitude to get flesh. Although with all descriptions of horses this is the better extreme of the two, it is very injurious to the legs."

"It is quite a mistaken notion, that a horse with a long coat on his back is less liable to catch cold than one that has a short one; the latter is closer to him, and is warmer, and is much sooner dry. A long hollow coat the wind blows up and exposes the skin; but, what is worse still, it is many hours before it is dry after a sweat or rain, during which time it must contain all the chilling properties of wet clothes. A horse with a fine coat is not subject to that sudden and premature shedding of it which Mr. Lawrence mentions as one of the causes of inflammatory attacks. There are horses which no exertions of the groom can get to wear a good coat, and are exceptions to the rule of looking well and being well."

We are quite ready to subscribe to the text of our author, that a horse with a short or a fine coat is less liable to "catch cold" than one with a long or rough coat. Being in a condition superior to that of the latter, the former opposes stronger powers of resistance to morbid influence in general, supposing the two to be subjected to the same sudden vicissitudes; but, as this is not presumed to be the case—the one coming from a warm stable, the other from a cold one—we should say (what experience confirms) that, all other circumstances being equal, the long-coated horse is less liable to mischief from exposure to cold than the short-coated one. On which principle, the country apothecary, whose hackney has to stand for hours in the course of his daily round tied to a rail, shivering from cold and wet,

though he cannot feed his horse too well, should keep him in a cool stable.

"Another argument against hot stables is, that horses kept in them are liable to catch cold in bad weather by the covert's side. My answer to this is, that if the rider will not let his horse stand still too long, and will *keep on his back*, there is no danger of his catching cold. There is considerable warmth in the pressure of the saddle to a horse's back with weight upon it; and there is that kind of animation in horses with hounds which keeps their blood in circulation."

"Now I think I have said enough on the subject of getting hunters into condition; the next thing is to keep them in it. In bringing a hunter round again, good stable management is put to the test. One man will bring a horse out again in four clear days better than another will in six. No servant can do his duty to a stud of hunters without proper materials to go to work with. He must have a good stable, some loose boxes, and a good saddle-room with a fire-place; lots of horse-clothes of all descriptions, bandages, hot water, gruel, *lancets*, tweezers, and a *few drugs*; the very best old hay and corn, good exercising ground, and, above all, plenty of strength in his stable; for there are two ways of dressing a horse—one to warm him, the other to starve him."

"Generally speaking, a horse should come out about the sixth day after the severest run. If his legs have received no injury, he should come out three times a fortnight, at least, during the open weather; and he will be better for being out twice a week, if there have been no tiring days."

"General rules cannot be individually applied; but there is one respecting a hunter which I have held inviolable, and that is, that under all circumstances, whether the intervals between his hunting have been long or short, he should have a sweat, and (afterwards) go for a mile nearly at the top of his speed on the day before hunting."

In regard to feeding on the day before hunting, "if a horse will eat his corn in the morning without water, he should have none till he comes in from exercise, and is done up, which should be by ten o'clock at farthest. He should then have half-a-pail of water, and a proportion of his hay, which should not exceed ten pounds a-day. He should then be put up till four, when, before he is dressed over, he should have another half pail of water, and no more until he returns from hunting the next day, unless it be a few swallows on the morning he hunts, when his groom first comes to him. If this quantity of hay is not sufficient to satisfy his appetite, and there is an ap-

pearance in the morning of straw in his manger, as if he had been eating it, the setting muzzle should be put on at ten o'clock at night, and remain on all night; but his groom should be with him by five in the morning to relieve him. He should then have two feeds at the interval of an hour, and proceed to the covert at a gentle pace."

Among the errors established by custom, and confirmed by prejudice and ignorance, we have always looked upon the deprivation of water, to the extent it is carried by grooms, as a very prominent one. Even so enlightened a stable-man as our author allows his hunters but a single pail-full of water on the day before he hunts; and none afterwards, until he returns from hunting. It would be throwing all physiological reasoning away to put any such question to a Newmarket groom or jockey as we are going to put to our friend Nimrod; but we should like to ask him, what he supposes to be the use of the water an animal drinks? What becomes of the fluid after it is drunk? and how much of a given quantity he imagines remains in the bowels half-a-dozen hours after it has been drunk? By the time he is enabled to solve these queries, he will (but not before) feel disposed to be more liberal to his thirst-stricken hunter. Although animals, in a state of nature, pasturing on the green herb, drink, and require but little water, yet, living in a heated stable, and feeding on dried and stimulating provender, the case is widely different. In such an artificial and forced state, they require a great deal of water, to make up for the deficiency of sap or fluid in their food; and, unless they are supplied with it, they can neither enjoy health or condition, nor can they exert their powers with the same degree of vigour and effect. Theory and fact, in sufficient abundance, might be brought to bear upon this important point; but here we have not the space (even were this a proper time) to discuss the question.

The treatment proper to be pursued, after hunting, is not less important to be considered than the preparation of a hunter for the chase. A tired horse requires every care and indulgence. A loose box; a little, a very little choice, and easily digestible provender; and abundance of water-gruel, or, if he will not take that, plain water, with the chill taken off. From the effects of mere fatigue, rest and quietude will, in time, restore him; but should he return what is called *over-marked,* "his groom must be on the alert."

"There are two or three directing symptoms which cannot easily be mistaken. In the first place, his appetite fails him, and he is very greedy for water; his respiration is not so smooth as it should be; there is considerable relaxation in the muscles in

the interstices of the hips. Notice should also be taken of his pulse; and if fever is denoted, he should lose a gallon of blood. A pectoral ball, and two ounces of nitre in his water, should be given him; and, instead of his corn, he should have what gruel he will drink, and a large bran mash, made rather thin, and nearly cold."

"When I first began to keep hunters, we knew nothing of those great restoratives in the stable—*flannel bandages, hot water for legs, and gruel.* The practice of washing legs in very warm water, and swathing them in large folds of flannel, takes off soreness and inflammation from blows and other injuries, which all hunters are liable to. Another advantage attending them is, that they admit of a horse being shut up in half the time it formerly required to clean him, which enables him to lie down or roll, which he will always do in a loose box, before he gets stiff from his work."

Nimrod's mode of treatment, after "a very hard day," is as follows:—

"There is a cleanliness in not letting a hunter be taken into the stable until the *rough dirt* which hangs about him is removed: for which purpose, he should be taken under a shed or into another stable; and the quickest method of removing it is, by means of a birch broom. Three minutes will accomplish this. He should then be taken into his own stable, have two or three quarts of tepid gruel, and his feet and legs above his knees and hocks should be well washed with water, nearly hot. When sponged well with strained sponges, one set of bandages should be swathed around them. His head and body should be well dried, which, if he is full of hard meat, will not occupy more than an hour, when he should be shut up in a loose house, well littered down, and a small feed of corn allowed him. In about two hours, his groom should return to him; his bandages should be taken off, his legs well wisped and hand-rubbed, his head and body lightly brushed over, and a set of dry bandages put on. A lukewarm mash, with a feed of oats in it, and three parts of a pail of tepid water, with a very small quantity of hay, will make him comfortable for the night; and on the following morning he should go to exercise as soon as it is light, and be walked for an hour with an extra cloth and hood. He should have tepid water all that day, and a liberal allowance of it, with his usual oats, if he will eat them, but no beans. He may have an hour's walking exercise on the third day; and on the fifth or sixth have a sweat; and on the seventh he will, even after the *hardest day*, be fit for business again."

We shall here close our extracts from a work whose merits, as

a sporting production, are too well and widely known to need any further commendation from us. We felt ourselves instructed as well as amused by the original letters, as they appeared from month to month in the Sporting Magazine; and we are ready to acknowledge we have experienced a repetition of both these feelings in their re-perusal. We conclude by voting a place for Nimrod's "Letters" in every veterinary surgeon's, as well as every sportsman's library.

Extracts.

On Cauterization by the Galvanic Pile, as a Preservative against Rabies.

By M. Pravaz.

M. Pravaz has conceived the idea of cauterizing, by the action of the galvanic pile, the wounds into which the rabid virus, or any poison, has been introduced. He instituted some experiments at the school at Alfort, on some dogs that had been bitten by rabid dogs, which require to be repeated, but which seem to be well worthy of consideration. We will select the following:—

First. A dog was bitten in the chest by a rabid dog; the surface of the wound was about two inches square. *Fifty-four hours afterwards*, and when it was almost dried up, it was submitted for half an hour to the action of a galvanic pile of small dimensions. At first the animal appeared to feel great pain, but that soon wore off; a few drops of blood escaped; a slough of the thickness of half a line was formed; this fell off on the eleventh day, and the animal was preserved from the disease.

Second. Both the thighs of another dog were inoculated with the saliva of the same rabid dog. *Fifty-four hours afterwards* the wounds were cauterized by the action of the galvanic fluid. sloughs were formed, which fell off on the eighth day; the wounds were healed on the twelfth day, and this animal also escaped.

Third. A dog was inoculated in the same manner as the preceding one, and with the virus of the same rabid dog, and left to himself: at the end of six days he died mad. The conclusions and the necessary results we shall not give to our readers until the experiments have been more numerous. It will be the duty of those who have opportunity to multiply these experiments, and to decide whether this species of cauterization may not be substituted for the ordinary method.

Recueil de Méd. Vét. 1830.

Miscellanea.

Serjeant Bond and his Horse.

Related by himself.

"I once bought a horse of a horse-dealer," said the serjeant, "warranted sound in all his points. I thought I had got a treasure, but still wished to find out if he had any fault. I therefore, when I had paid for him, said to the seller, 'Now, my friend, you have got the money and I the horse, so that the bargain is closed; but do, like an honest fellow, tell me of any fault that he has.' 'Why, sir,' says he, 'you have dealt with me like a gentleman; and as you ask me to be frank with you, I must tell you that the horse has one fault.' I pricked up my ears. 'What is it, my friend?' 'Why, sir,' says he, 'it is, that he will not go into the yard at the Crown Inn, at Uxbridge.' 'Pooh, pooh,' said I; 'if that is all, I am not likely to put him to the trial, as I have nothing to do with, or to lead me to, Uxbridge.'

"It, however, so happened, that I had occasion to go to Uxbridge; and I determined to try if my horse retained his dislike to the yard of the Crown Inn. I accordingly rode up the street until I came opposite to the inn yard of the Crown. I faced about, seated myself firmly in my stirrups, expecting a plunge from my horse. I struck my spurs into his side, and pushed him forwards into the yard; but what was my surprise, to find him enter the yard as quietly as a cow that had gone in before him. But I was not long left in doubt as to what appeared to be the cause of this change in his antipathies, by the landlord coming up to him, and tapping him on the shoulder, 'Ha, Jack,' says he; 'I'm glad to see you again; I thought I had lost you.' 'What do you mean, Mr. Landlord?' 'Sir,' says he, 'this horse was stolen from me about six months ago, and I have never seen him since.' I did not much relish this information; but I could not help laughing at the conceit of the horse-dealer to prevent me from going to a place where his theft of the horse would be discovered. I wished I had attended to his caution, as the sale to me was not regular; and I was left to make the best terms I could with the landlord."

My Contemporaries.

The Duty of a Jockey.

The duty of a jockey is to win, and not to do more than win. Half a neck is sufficient when his antagonist is exhausted; and as much judgment is shewn in avoiding useless exertion as in making that which is sufficient. The best and most expert jockeys, such as Robinson and Chifney, avoid the use of the whip, if possible. Boys more readily resort to it, and thereby sometimes lose a race that might otherwise have been won.

When a race-horse is in the fullest exercise of his power, and doing his best, the blow of a whip will sometimes make him wince and shrink: he will, as it were, tuck up his flanks to escape from the blow, and raising his legs higher, lose ground, instead of stretching his legs forth over a larger surface. In this way considerable space may be lost, when nothing is wanting but a quiet steady hand, and a forbearance from the use of the whip. A curious example of this occurred a few years ago at Doncaster, in the celebrated race between Matilda and Mameluke. The latter was of a hot and violent temper; and being irritated by several false starts, not only lost considerable ground, but a great deal of his strength at the outset of the race. Robinson was riding Matilda, and saw Chifney on Mameluke passing every horse in succession till he came up with Matilda. At that moment he calculated Mameluke's strength with such nicety, that he was convinced he could not maintain the effort he was then making. He permitted Chifney, therefore, to reach him, and even be a little a-head of him; and so far from whipping Matilda, actually gave her a kind of check. That check, that slightest imaginable pull, strengthened Matilda, and by assisting her to draw her breath, enabled her to give those tremendous springs, by which she recovered her ground, headed Mameluke, and won the race for her owner, Mr. Petrie. It was in this race that a Scotch gentleman, who had won £17,000 by the issue, went up to Robinson in the joy of the moment, and gave him £1000 as a present. Gully, the owner of Mameluke, is said to have lost £40,000 on the occasion.—*Weekly Despatch.*

The Farrier's Boy and the De'il.

Mr. Aiton, in his Survery of Ayrshire, relates a ludicrous story of the service rendered to the burgh of Prestwick by a sprig of farriery, in disabusing the inhabitants of some strange superstitions, to which they had given credence. About the end of the 17th or beginning of the 18th century, one of the magistrates of Prestwick committed to prison a boy who had been guilty of a depredation on the peas of one of the barons of that burgh. David Rankin (afterwards smith in Kilmarnock), then apprentice to the baillie, and who had also made free with the peas, found means to steal the key of the prison, from under his master's pillow, and to liberate his companion. Observing a bull-stirk at hand, he incarcerated him, locked the door, and deposited the key where he had found it. Next day, about ten o'clock (the hour of cause), when the magistracy and barons of the burgh were convened, to sit in judgment on the boy, instead of him, they found in prison a bull roaring for the want of food; and from their ignorance of the trick that had been practised, and the superstition of the

times, they imagined to be the devil, who they thought had destroyed the prisoner, and was still roaring for his prey, seeking whom he might devour. In this dilemma, they resolved to call the minister of the parish to *lay the de'il;* and Rankin offered to run for him express. Having learned the truth from Rankin, and none of the magistrates or barons having the courage to look Satan in the face, the minister easily succeeded in *laying* him. The terrified baillies and barons, happy to find that their prisoner had escaped from so formidable an enemy, inflicted no further punishment on the delinquent for his intromissions with the baron's peas. Rankin sometime after practised a similar trick at the neighbouring parish of Saint Guivox. He tied the bell-rope to the tail of the minister's cow, in the middle of the night, and when the irregular tolling of the bell brought out the inhabitants, the cow was mistaken for Beelzebub. Even the minister himself continued in that opinion, till the error was discovered about the rising of the sun. These extravagant tricks of a wild boy exposed the absurdity which then prevailed in that quarter, of calling out the clergy to *conjure* or *lay* the devil. His sooty highness seems to have been affronted at the inhabitants comparing him to a bull or a cow; for he has scarcely ever appeared personally in either of these parishes since these tricks were practised.

HORSES SHOULD NOT BE OVER FED WHEN NOT AT WORK.

Mr. AITON gives a ludicrous but rather unfair illustration of, in his estimation, the absurdity of the above excellent maxim. "Some people are so ignorant of the *animal economy*, as to imagine it is to no purpose to feed cows when they are not giving milk, or horses when not at work. I met some years ago with a reverend clergyman attending a funeral of one of his parishioners, mounted on a large meagre horse, and labouring hard with *staff* and *spur* to keep up with the procession. When requested to accompany the funeral to the place of interment, he said he intended to have done so, but found his horse unable to travel, which, he said, was to him surprising, as he had given him no less than *three measures of grain* that morning. A gentleman present said, the animal did not seem to have gotten as much every day. The clergyman owned that he had given the horse *no grain* since last time he rode him, about *three weeks before.* Some farmers seem to have adopted the notion of this reverend gentleman as to their dairy cows, and give them no green or rich food when they are not in milk. But they will find, that, when their cows come again into milk, they will not, even on the best feeding which they can bestow, be much better able to yield milk than the clergyman's horse was to ride, when he had received *three measures of grain* that morning."

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MR. YOUATT'S VETERINARY LECTURES,

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LECTURE XXIII.

The Serous Membranes.—The Pleura.

THE parietes of the thorax are lined, and the lungs are covered, by a smooth glistening membrane, *the pleura.* It is a *serous* membrane, so called from the nature of its exhalation,—*serous*—albuminous—in distinction from the *mucous secretion* yielded by the membrane of the air-passages that have hitherto come under our consideration. The serous membrane generally invests the most important organs, and always those that are essentially connected with life ; while the mucous membrane lines the interior of the greater part of them. The pleura is the investing membrane of the lungs, and a mucous membrane the lining one of the bronchial tubes.

The Polish of the free Surface.—Among the principal circumstances to be observed with regard to the pleura is the polish of its external, or, as it may perhaps be better termed, *free* surface. The glistening appearance of the lungs, and of the inside of the costal wall, is to be attributed entirely to the membrane by which they are covered ; for if we strip off the pleura, the surface of the lungs and of the intercostal muscles is not a little rough. This is the character by which the serous membrane is distinguished everywhere, and thus the motion of the various organs is freer and less dangerous. Although the lungs and the thorax are in constant approximation with each other, both in expiration and inspiration, yet in the frequently hurried and violent motion of the animal, and in fact in every act of expiration and inspiration, of dilatation and contraction, much and injurious friction would ensue if the surfaces did not glide freely over each other, from the peculiar polish of this membrane.

We shall have to observe, by-and-by, how admirably the serous membranes prevent injurious friction, even in disease as well as in health. In health the polished surfaces glide smoothly

and harmlessly over each other, and friction is prevented by *easiness* of motion. In disease they adhere to each other, and friction is destroyed by the *impossibility* of motion. Inflammation of a serous membrane is quickly followed by adhesion; there was design in this, for from the increased sensibility of the membrane, and in spite of the polished surface and the lubricating fluid, pain and aggravated disease would result from the attrition of the parts. This does not so often take place in the quadruped as in the human being; for the lungs here resting on the sternum, instead of the elastic diaphragm, the motion is not so extensive. We occasionally, however, see in all our patients the lungs bound to the intercostals, or the opposed reflections of the pleura, not only by interposed bands, but their whole surfaces are agglutinated together by firm organized adhesions.

The Exhaled Fluid.—Every serous membrane has innumerable exhalent vessels upon its surface, from which a considerable quantity of fluid is poured out. This fluid, I have said, is of a serous character; it resembles the serum of the blood. In life and during health it perhaps exists in the chest only as a kind of dew, just sufficient to lubricate the surfaces. When we open the chest soon after death, we recognize it in the steam that arises, and in the few drops of fluid, which, being condensed, are found at the lowest part of the chest.

The Absorbents.—The quantity, however, which is exhaled from all the serous membranes, must be very great; it is perhaps equal to or superior to that which is yielded by the cutaneous vessels. If so little is found in ordinary cases, it is because the absorbents are as numerous and as active as the exhalents, and, during health, that which is poured out by the one is taken up by the other: but in circumstances of disease, either when the exhalents are stimulated to undue action, or the power of the absorbents is diminished, the fluid rapidly and greatly accumulates. Thus we have hydrothorax or dropsy of the chest, as one of the sequelæ of thoracic inflammation; and the same disturbed balance of action will produce similar effusion in other cavities.

Nature of occasional Adhesions.—The character of the fluid varies under different circumstances of disease. Although albuminous—disposed to coagulate at certain temperatures, and under certain influences—it is easily and completely absorbed during health. Even in disease it sometimes retains its perfect fluidity; but at other times, whether from actual increase of temperature produced by inflammation, or from a degree of vitality or tendency to organization communicated to it, it coagulates over the whole of the surface of the pleura, or on spots of it, forming ex-

tensive layers or mere bands, into which vessels speedily shoot, and the process of organization is accomplished.

Extensibility.—This property of membrane generally is nowhere more strikingly displayed than in the serous membranes, and particularly in that under consideration. How different the bulk of the lungs before the act of inspiration has commenced, and after it has been completed, and especially in the laborious respiration of disease or rapid exertion! In either state of the lungs, the pleura seems to be perfectly fitted to that which it envelopes.

Elasticity.—This property is connected with the preceding, and as clearly demonstrated. The power which distends it being withdrawn, it contracts with the diminished bulk of the lungs. It is one agent, and perhaps of no mean power, in the process of expiration. It is one illustration of that principle of elasticity to which, in the last lecture, I attributed the whole function of expiration. Accident occasionally presents us with a yet more evident proof of the elasticity or contractility of the investing membrane. If the parietes of the thorax are punctured, and the pressure of the atmosphere equalized within and without the pulmonary pleura, the lung collapses to less than half its size, even after the act of expiration had been completed.

Vascularity.—In a state of health the bloodvessels of the pleura are not numerous. Considerable portions of the reflected part of it may be examined without any arteries or veins appearing, and where the blood will not follow the knife. Even the vessels that are apparent seem to be ramifying over it, rather than entering into it, or belonging to it. A membrane, the expansion of which is so variable, and indeed every moment changing, does not seem to be calculated for the transmission of numerous vessels. The exhalents, however, carrying the pellucid serous fluid of which I have been speaking, communicate with or proceed from arterial ramifications; and under inflammation there are vessels enough, not previously containing red blood, which expand, and mark by their redness the seat and extent of inflammation. This is peculiarly evident in that patchy species of inflammation of the pleura sometimes accompanying rabies.

Little Sensibility.—The pleura, like other serous membranes, is possessed of very little sensibility. Few nerves from the sensitive column of the spinal chord reach it. Acute feeling would render these membranes generally, and this membrane in particular, unfit for the function they have to discharge. It has too much motion, even during sleep; and far too forcible friction with the parietes of the thorax in morbid or hurried respiration, to render it convenient or useful for it to possess much sensation. Some

of those anatomists, whose experiments on the living animal do no credit to their humanity, have given us most singular proof of the insensibility, not only of these serous membranes, but of the organs which they invest. Bichat frequently examined the spleen of dogs. He detached it from some of its adhesions, and left it protruding from the wound in the abdomen "to study the phenomena;" and he saw "themselves tearing off that organ, and though in a state perfectly calm, eating it, and thus feeding upon their own substance." In some experiments, in which part of their intestines were left out, he saw them, as soon as they had the opportunity, tear them without any visible pain.

Except under Disease.—Although it may be advantageous that these important organs shall be thus devoid of sensibility when in health, in order that we may be unconscious of their action and motion, and thus they may be rendered perfectly independent of the will, yet it is equally needful that, by the feeling of pain, we should be warned of the existence of any dangerous disease: and thence it happens that this membrane, and also the organ which it invests, acquire under inflammation the highest degree of sensibility. The countenance of the horse labouring under pleurisy or pneumonia, will sufficiently indicate a state of suffering; and the spasmed bend of his neck, and his long and anxious and intense gaze upon his side, tell us that that suffering is extreme.

Yet not under every Disease.—Nature, however, is wise and benevolent even here. It is not of every morbid affection, or morbid change, that the animal is conscious. If a mucous membrane is diseased, he is rendered painfully aware of that, for neither respiration nor digestion could be perfectly carried on while there was any considerable lesion of it; nay, the animal often expresses a great degree of pain, plainly referrible to these membranes, and yet on examination after death they exhibit little or no morbid change: but, on the other hand, we find tubercles in the parenchyma of the lungs, or induration or hepatization of their substance, or extensive adhesions, of which there were few or no indications during life.

The adherent Surface of the Pleura.—In some few cases (and the thorax furnishes us with one) the pleura is isolated on both sides. It is so in the mediastinum, and then both sides present the same polished glistening appearance; but a serous membrane is generally an investing one, and then it has a very different surface internally, namely, a roughened flocculent one, by means of which it adheres so closely to the part beneath, as to be scarcely separated by the most careful dissection. The pleura adheres intimately to the ribs and to the substance of the lungs;

yet it is a very singular connexion. It is not a continuance of the same organization; it is not an interchange of vessels. The organ and its membrane, although so closely connected for a particular purpose, yet in very many cases, and where we should least of all suspect it, have little or no sympathy with each other. Pneumonia will sometimes exist, and will run on to congestion, or even ulceration, while the pleura will be very little affected: and, much oftener, the pleura will be the seat of inflammation, it will be attended by increased exhalation to such an extent as to suffocate the animal, and yet the parenchymatous substance of the lungs will exhibit little other morbid appearance than that of mere compression. The disease of a mucous membrane spreads to other parts—that of a serous one is generally isolated.

The Continuity of Texture.—It was to limit the progress of disease that this difference of structure between the organ and its membrane was contrived; and the more to ensure this, the serous covering of every viscus, abdominal and thoracic, is perfect. The pleura is nowhere perforated even to give passage to the smallest bloodvessel or nerve, but they enter at one point only, and between a duplicature of the membrane. We see the reason of this. I have now immediately exposed the lungs to observation—a passive organ—a mere mass of cellular texture and innumerable vessels—and close by it, or rather between its lobes, I find the heart—an active organ, always and energetically at work—a mass of muscle, irritable and powerful. Their structure is altogether different—their function is as different—they have nothing in common, except that the blood traverses both, but for a totally opposite purpose. They may interfere with and confuse the duty of each other,—and the one can scarcely exert an advantageous influence over the other; then observe, although in approximation with each other, how perfectly they are separated. The double serous investment of the heart, the serous investment of the lungs, with the additionally interposed mediastinum, and this investment on each, and through its whole extent, impervious, render the one organ in a manner independent of the other, and the whole is contrived for this especial purpose. We shall see by-and-by, that the horse may have or may perish from carditis, and the lungs will exhibit no appearance of disease; and on the other hand, he may be destroyed by pneumonia, or by pleurisy, and the heart will scarcely sympathize more than any other part of the frame.

The Independence of the Serous Membranes.—Again, do me the favour to observe, that between the heart and the mediastinum, in the folds of which it is concealed, there is no communication

even by the slightest filament. The mediastinum is the continuation of the investing tunic of the lungs,—the pericardium of that of the heart. They are in contact with each other, but they are as distinct and unconnected as if they were placed as distant from each other as the frame would admit. Is there no meaning in all this? Have we been sufficiently aware of the important object thus effected? It is to preserve the perfect independence of organs equally important, yet altogether different in structure and function;—to oppose an insuperable barrier to hurtful sympathy between them, and especially to cut off the communication of disease.

The Effect of Purging in Pleurisy and Pneumonia.—I must not too much anticipate, but perhaps a little light begins to be thrown on a circumstance of which, I hope, you will not have too frequent and painful experience. I mean the fact, that while we may administer physic, or mild aperients at least, in pleurisy, not only with little danger, but with manifest advantage, we may just as well give a dose of poison, as a physic-ball to a horse labouring under pneumonia. The pleura is connected with the lungs, and with the lungs alone. There is not a connecting filament with any other viscus; and although connected with the lungs, the organization is so different, that there is very little sympathy between them. A physic-ball may therefore act as a counter-irritant, or as giving a new determination to the vital current, without the propagation of sympathetic irritation; but the lungs or the bronchial tubes that ramify through them are continuous with,—it is a somewhat roundabout way,—but they are continuous with the mucous membranes of the digestive as well as all the respiratory passages; and on account of the continuity and similarity of organization, there is much sympathy between them. The irritation caused in the one is easily propagated to the other; or if there be irritation excited at the same time in two different portions of the same membrane, it is probable that, instead of being shared between them, the one will be transferred to the other—will increase and double the other, and act with fearful and fatal violence. Do not you, gentlemen, require too many lessons of this kind to teach you caution.

The Mode of Investment.—A few words, and these in the simplest and perhaps superficial way, must now be said as to the manner in which the thorax and lungs are covered by the pleura. I take away a portion of the wall of the thorax, and by careful dissection I arrive at this membrane, forming the inner lining of that portion of the ribs which I am removing. I cut through this membrane, and introduce my hand into the chest, and I feel the smoothly polished pleura covering the bony wall of the tho-

rax above and below from the spine to the sternum, and before and behind from the first rib to the diaphragm ; but when I attempt to pass my hand beyond the spine or the sternum to the other side of the chest, I meet with an insuperable obstacle : the pleura is leaving the spine above and is reflected or turned downwards, and it is also leaving the sternum below, and is reflected upwards ;—it is leaving the diaphragm, and I can trace it forwards ; and it is quitting the first rib, and I can trace it backward. I follow it, and I most conveniently follow it from below upwards. I can trace it all along the sternum, reflected upwards, and I can trace a portion of it both anteriorly and posteriorly as high as the spine, but centrally, and introducing my hand between the lungs, and directing it towards the spine, my progress is opposed. There is a voluminous mass, round which, however, I can plainly feel the pleura turning. On examination, I find this to be the origin of the bronchial tubes, or the bifurcation of the trachea on either side, together with the vessels proceeding from the heart to the lungs, and from the lungs to the heart. These, to a certain extent, are covered by this reflection of the pleura, and closely embraced by it ; and then, examining more closely both the outer and inner surface of the lung, I find that the pleura dilates, and forms a kind of bag, and spreads over and contains the whole of that lung.

Two Pleuræ and the Lungs between them.—On the other side I find precisely the same structure, except that the reflection from the sternum always takes place a little on the left of the mesian line. Then I have two distinct pleuræ, each lining the ribs and a part of the diaphragm, and constituting the wall of partition along the thorax, and including the lung in a fold or prolongation of itself ; and I have two distinct cavities, the right being rather the larger, because that lung is of somewhat greater size than the left. I have also this singular fact, that the lungs are, in one sense, as much out of the pleuritic cavity as are the bony parietes of the thorax, and are covered, like the walls of the thorax, by the outer surface of the membrane. The sacs are empty, and the lungs are curiously enveloped in folds or dilatations of one of the sides, and in contact with the outside of the bag and not the inside. There result, however, from this singular arrangement some important circumstances which could not otherwise have been accomplished : the polished and glistening surfaces of the pleuræ are opposed to each other, and the utmost freedom of motion is thus permitted ; a duplicature of membrane is interposed between the lungs and their bony wall, and a closed cavity is formed in which there may always exist a moisture or dew, to obviate injurious friction, to prevent concussion by its in-

terposition, and to be contained comparatively harmlessly there, until it can be removed by the absorbents, when, from some cause of irritation, an undue quantity has been poured out.

The Mediastinum.—The reflection from the sternum upward and the spine downward is called the mediastinum. It evidently consists of a duplicature of pleura, or the unattached or reflected membrane on each side, and between these membranes we find the heart securely lodged; but its situation and connexions, and the advantages derived from them, belong to another system. That portion of the mediastinum anteriorly which is not thus occupied is called the *anterior* or *little mediastinum,* the contents of which have been already described; and behind is the *posterior* or *great mediastinum,* containing the gastric portion of the œsophagus, the posterior aorta, the posterior cava, and a kind of fold in which is wrapped the larger of the two lobules of the right lung.

We are now prepared to return to the intimate structure of the lung itself; but this is an important subject, and deserves a separate lecture.

ON THE ANALOGY BETWEEN THE GRIPES IN HORSES AND THE EPIDEMIC CHOLERA.

By Bracy Clark, *F.L.S., Member of the Royal Institute of France.*

In the midst of the numerous, opposite, and very conflicting opinions, which prevail at this time respecting the direful epidemic called cholera, and which still exerts its fatal ravages in spite of all that has been done, and which opinions respecting its nature and its treatment seem almost as various and unsettled as they were at the first commencement of it (if we may judge, at least, from the recommendations every day proposed in the medical periodicals),

Under these circumstances you will, perhaps, pardon the suggestions of one who, though formerly educated for it, is not now strictly one of your honourable profession, and permit him to advance an opinion which he has long entertained, and which, if it be not founded on truth, has one merit at least—that of novelty. These opinions have, however, been shewn to a few of his medical acquaintance, who do not see any thing in them to forbid the reasonings and conclusions here drawn; which has induced him —with great deference, however—to make them more publicly known. If they should be at all admitted, they will certainly lead to a more decisive, and perhaps more successful, mode of treating this disease.

Many physicians have, I believe, been of opinion that this epidemic, though designated cholera morbus, was not properly that disease, at least according to the definitions given of it by the best nosologists; but what it was, they have left undetermined, or by what name in their system it should be called. Indeed, that it could not very well be cholera morbus, being for the most part deficient in the grand character of that complaint, as its name, indeed, implies, of purgings with increased biliary secretions; for this secretion seems often morbidly suppressed and almost entirely wanting in well-marked cases of this disorder; and the diarrhœa which sometimes precedes it we believe to be no part of the disorder, but as sometimes leading to it, by its weakening influence upon the general system, and especially upon the parts immediately concerned; but in very many cases it is not present at all, and therefore is no necessary concomitant or character of the disease.

Perusing the various descriptions of this disorder, I have been a long time firmly persuaded that its prevailing character bore a nearer analogy to a complaint that I had had often to contend with among animals, than to any enumerated in the books on human nosology; and that, in fact, it was a more or less complete suppression of the process of digestion or chylification, as we shall presently illustrate by actual cases, and that it bore a nearer analogy to, and was proceeding very much from, the same fatal causes as the stroppos, or the gripes, in horses; in which, in the early part of my practice in this great metropolis, I had had a large and not unsuccessful experience, having discovered its true cause and a successful mode of combating it.

Attacks of this complaint, like the cholera, often carried off the animal in a few hours: and in the commencement of my practice, though employing and using all the then known and recommended remedies (and such are sure to be numerous and discordant enough, where the character of the disease and its treatment are not understood), I frequently lost my patients. Fearful of losing my credit also, I took unusual pains, by watching, dissection, and otherwise, in satisfying myself of the nature of the disease, and of what should be its proper treatment; and at length so far succeeded, that for years I never lost a patient, often contending with protracted and cruel cases. The success that attended my treatment, induced me, for a considerable period, to keep it a secret, and it was extensively sold privately; but, at length, becoming more generally known, and abused also, and not given with the laws prescribed with it, I determined on publishing an account of it, and (what was of fully as much or more consequence) my views respecting the nature and causes of the com-

plaint, and how it should be treated by properly sustained measures in aid of the medicine—(See "Essay on Gripes of Horses," London, 1816)—I believe, in the different large breweries in this metropolis that I at that time attended, some thousand pounds worth of horses were saved by what I called a duly sustained treatment of the complaint, of which testimonies were given me, which appear at the end of the above treatise.

In respect to the cause of the disease, I traced it satisfactorily, at its commencement, to an insufficient power in the alimentary organs to carry on and perfect the digestive process, either from the accession of some debilitating cause, which rendered these organs unequal to the task, or from the unfavourable nature of the contents of the viscera as to quality or quantity, or from both or all these causes combined. The lowering agency of a sudden chill to the abdomen would alone produce it under ordinary circumstances, and still more easily if a refractory quality or unusual quantity was superadded. Derangement or suppression of the chylifacient process would take place in the intestines, and the disease be carried on there to its termination in death; or it might be communicated by sympathy or by connexion to the stomach, or *vice versâ*, beginning in the stomach and carried to the bowels. In either case, the suppression or arrestation of the digestive process would quickly produce *tormina;* which, if not relieved by the restoration of digestion, would quickly terminate in death, either by inflaming the mucous membrane of the bowels or stomach, or by its operation upon the brain through the agency of the nerves of the stomach. In horses, who could withstand a severer shock of this sort than the more sensitive human being, inflammation would have time to establish itself pretty fully in the membranes of the bowels, and produce appearances not very unlike what Dr. Annesley has given in his work on Indian Cholera; for extreme violence in the attack from several causes, combined with great strength of constitution to resist it, would have much the same effect in the animal as often happened in the cases related in India.

We may, perhaps, illustrate the cause of the sudden termination of the complaint in the following way:—that many substances assume a poisonous quality if they are not digested, but if digested they are perfectly inert.

If you give to a horse four ounces of the leaves of the yew tree, on an empty stomach, it will destroy him in a few hours, and but a very slight appearance of inflammation will the stomach exhibit, in petechiæ or spots of the size of the little-finger nail. But if to this quantity of the acrid vegetable you add eight ounces of oats, and mix them together, he will eat the whole, will digest

them well, and will not even be incommoded; so that, in the former case, it must have been destroyed by the influence of the undigested matter upon the brain, acting on the nerves of the stomach before the other symptoms attending the suppressed act could have had time to display themselves.

It may be asked, what should be the cause of this epidemic at this particular time, and why it should be almost wholly, if not quite, a human one? This I would not undertake to account for, any more than the plagues in Egypt or Jerusalem, or the causes of any other scourges with which the Almighty at times has assuredly visited mankind. I can, however, in reply to it, only just observe, that if the atmosphere was, by any changes in it, rendered less stimulant to the ordinary act of human digestion, it would readily produce such an effect; nor could we, perhaps, by any analysis detect it, though it is possible that we might, if truly, anxiously, and industriously employed upon it. That the atmosphere, for a long time past, has been more thick, turbid, and hazy, than I ever remember it before, I can from frequent observation testify; but whether this appearance did or did not belong to the production of the disease, I do not undertake to determine, though I fully believe so: admitting, however, but for a moment, the position, we should then see that the weak, the debilitated, the intemperate, the drunkard, the imprudent, and the exposed, would be the especial objects of its visitation, as, in fact, they have been amongst its most frequent victims. General Diebitz was a remarkable instance of it, being a wholesale devourer of punch.

No better account has ever yet been given of the immediate cause of many a pestilence, many a fever and plague, and for which we can only present as a cause the inapplicable general term malaria, or the Almighty will; and no further yet have the profoundest researchers into primary causes been able to get.

One of the best related cases I have seen of the cholera, and most minutely detailed, was that of a gentleman at or near Glasgow, I think, who had eaten an unusually hearty meal of pickled salmon, being fond of it. The mass was too considerable, either from the quantity itself or the debilitating influences of the malaria, or both, for it to pass through the usual stages of chylification: he was seized with what were called the genuine symptoms of cholera, which no one ever disputed they were, and he died. Now all the circumstances here could be readily explained upon those principles which I have laid down in explaining the gripes of horses; but there, in some of the most violent and rapid cases in their termination, we had a direct and visible cause in a chilling atmosphere, with or without rain, and the animal also sweat-

ing from labour at the time of its application, and thus doubling the chill. The magnitude of the intestines of the horse—the prodigious mass they would contain of vegetable food, least liable of any to digestion—the thin membranes composing them, rendered them quite unequal to the task of carrying on the digestive process under such untoward circumstances; and digestion ceasing, and the disorder once begun, lead to others producing active inflammation in the mucous membrane, brain affections, &c.

Now what have been said most to produce this cholera was the eating of cucumbers, and melons, and unripe fruits, and hard meats;—and why? Because these are amongst the most difficult of the vegetable tribes of digestion, and, refusing digestion, they become poisonous, and so do they act in producing *tormina*, wreathing and knotting of the abdomen; and from whence the ancients called it *strophos*—from the verb *strepho*, to turn, twist, or writhe about. And may we not also readily account for the extraordinary coldness of the tongue, so often noticed, on these principles—from the chilled and rigid state of the stomach and the total absence of digestive power, the blood then retiring to other parts of the body?

In respect to the cure, which all will be desirous to know, it consists only in well known remedies; but their operation is rendered more effectual by understanding the nature of the disease and the point to be obtained—viz. *the restoration of the digestive functions, at all events;* for before I found this, I rested when the remedy had been given, nor knew what to do if it did not succeed or take effect, the practice being almost purely empirical; but if the train of operations in the stomach and bowels were not restored at one dose, I aided it by a repetition, regardless of the terrors about inflammation, a bugbear which former idle apprehensions had filled me with, by other measures also nearly as potent, and pursued it without delay with a second, a third, or a fourth or fifth, till I saw the healthy actions return, or a recommencement of the digestive process; which being sustained by prudent measures, the case did well. If inflammation had begun, some slight after-treatment might be necessary.

With the horses, I led them to a warm place, shut all the doors and windows, covered them with rugs, threw down straw for them to roll upon, and gave them successive doses of the tincture of Pimento—about a quarter of a pint at a dose, waiting half or three quarters of an hour between every dose. Getting my hands under the rugs, I rubbed the abdomen with flannel; and sometimes, with all this it took seven hours, in very bad cases, to restore the digestive process, but many a one supposed to be dead recovered; for the relief is so great and soothing to them after the excruci-

ating agony they had suffered, that they doze often on losing their pain.

I will now relate a human case, and its treatment. A very respectable middle-aged woman, in service, not far from my house, had eaten a free, but not very copious, dinner of liver and bacon, and, I believe, had taken porter instead of water with it. She dressed and went out in the afternoon, with a friend, to the Bazaar in St. James's Street; and loitering about to look at the various articles, and a wind blowing through the avenues of the place at the time, she suddenly became uneasy, and soon in violent pain. She returned home as fast as she could, and complained very much of sickness, and a deep, oppressed, painful feeling about the præcordia. She vomited violently, but this did not relieve her pain, which became excruciating. I then ordered her to shut the door of the apartment she was in, and to put the kettle on, with a pint of water—this small quantity only, that it might the sooner be heated; and of this, when nearly boiling, I made her drink, as hot as she could in any way get it down, three parts of a pint; her vomiting continued, however, and her pain. I next, therefore, ordered half a pint of hot ginger tea, which she also took, but without relief. About an hour had passed over in this way, still in severe pain. I now ordered her to bed, sending with her a good pan of hot coals to warm it well first; and to this I added a glass of hot gin and water, a little sweetened, which she sipped as hot as she could take it. In less than five minutes after, she felt a sudden remission of the pain; she slept well after, and the next morning was at her work, as usual. She seemed, however, headachy towards the afternoon, and I recommended a dose of Glauber and Epsom salts mixed, which restored her usual health.

A few days ago, a gentleman of my acquaintance, whose son was not unacquainted with my opinions respecting this complaint, was suddenly seized one evening with excruciating pains about the præcordia, and unlike any thing, in point of severity, he had ever experienced before: he compared it to being screwed through with a screw. A fire was made in his room, and brandy and water, pretty strong, with laudanum (which I do not recommend), was given him by his son; and, at the end of two hours, by these remedies, and with rubbing the abdomen with flannel, he was relieved, and was out the next day on his morning walk, when I saw him and heard his description of what he had gone through; and his son related to me what he had done for him. I consider myself as having been twice attacked with an arrested digestive process, and which, if permitted only a short time to have gone on, would have ended in what is called a true cholera (for names, though simple, are frightful things often in misleading our views).

I immediately closed the apartment, took to drinking hot water (as hot as I could in any way get it down); I sat by the fire and rubbed, with a flannel bag over the hand, the abdomen, and in a quarter of an hour had dispelled the symptoms. This is the simplest form, perhaps, of the complaint, or rather the point of commencement of it, when it can be more easily subdued—especially if there be no great opposition from the mass of food or its quality being very refractory, and the animal powers in tolerable force. The knotted state of the abdomen appears to arise from the recti and other abdominal muscles being contracted in sympathy with the suffering parts beneath. For some remarkable cases, where the restoration in the horse was opposed by a combination of untoward circumstances, I must refer the reader to the treatise above described; and for a great deal of reasoning and observation which would be out of place in this small sketch.

As to anodynes or opiates, it must be obvious, relieving pain by mere soothing and lulling the nerves must be nugatory while the cause of that pain remains uncontrolled: I, therefore, early quitted the use of them, and found, by doing without them, their total uselessness; and as bleeding may exhaust the very powers we want to rouse, that I never resorted to till the next day, if any inflammatory symptoms appeared to remain from the lateness of the remedy or the extensive application of it, when a gentle purgative or a venesection was decisive.

There may be cases, though I believe but rarely, when the cardiac system may be oppressed by an overcharge of blood, as in some plethoric people, where *breathing a vein* would set the springs more at liberty for motion, and be of service; otherwise, blood-letting I believe not to be necessary, unless to suppress, as we have stated, any inflammation consequent upon the remedy, as that may have arisen from its late application.

After this manner may be successfully treated, we believe, a very great number of these strophic attacks, if for once we may be allowed to drop the erroneous term cholera, for there is certainly no χολη or bile to characterize the complaint, or concerned in it;—but rather, perhaps, a want of suppression of this secretion; and which want of the daily purgative of life adds to the facility of access and severity, perhaps, of the complaint: and may not the diarrhœa complained of in many cases, which precedes the complaint, derive its origin from the want of the stimulation of this natural fluid; the intestines inflaming for the want of its usual operation upon them—thus inducing a capillary flow into them, and purging—for the same causes that suppress the digestive act, will also diminish biliary secretion.

Though by no means generally, yet in several instances we

have seen, of late, that the remedies proposed were of the description here pointed out. Horseradish tea has been givan in Lincolnshire, and a cholera tincture is now sold in the shops; but, in the manner of using them, there does not seem to be a full understanding of the true nature of the disease, which they continue to call cholera; nor do they appear to be aware of the necessity of making their treatment efficient by a combined plan of operations in the attacking it: so that their treatment is almost an empirical one, and would not, in this case, be attended with so extensive a success.

If this small communication is deemed worthy your notice, it is at your service, to apply it to whatever purpose you please.

Medical Gazette.

Regent's Park, Oct. 12, 1832.

Mr. Bracy Clark has here ingeniously traced a certain degree of *resemblance*, in one symptom at least, between spasmodic cholera in the horse and cholera in the human being; but we have very great doubt as to the truth of the more extended analogy which he imagines to exist between these diseases, whether we regard their seat, or character, or termination, or treatment.

We hope, in an early number of the next volume, to be able to present our readers with some cases of *actual cholera* which occurred, both in cattle and horses, in the practice of a very skilful veterinary surgeon in a northern district. The general symptoms, the fæcal discharge, the fearful collapse, the morbid appearances, were, in a manner, identical.

ON COOKING FOOD FOR HORSES.

By Mr. William Dick, *Veterinary Surgeon, Edinburgh.*

The deficiency in last year's crop of hay and straw was such as to have been severely felt by all those connected with horses, and naturally excited a desire of using these articles as economically as possible: and as the attention which has been bestowed by some individuals who have had a pretty ample field for experiment has led to what I consider some useful results, it appears to me, that notwithstanding the very favourable prospects which are before us in every part of the country, the knowledge that much saving may be effected by an economical use of fodder, may be useful to all or most of your agricultural readers. And, even should the abundance of the present crop be such as

to render it a matter of less moment now than it would have been last season, and may be on some future occasion, still the knowledge of the fact is at least worth recording; and that fact is, that a horse may be kept upon a much less quantity of hay than is generally supposed to be necessary for him, and that without stinting him of a proper allowance of that kind of provender. Horses, when allowed as much hay as they commonly are, almost invariably waste a considerable quantity of what is placed before them: the wasted portion with them goes for nothing, but it costs the full price to the owner of the animal. This waste, on an average, amounts to nearly one-half, or at least one-third, of what is consumed. It is quite evident, therefore, that, if the portion that is wasted could be saved, a great diminution in the expense of keep would be the result. A saving, however, is not only to be effected by avoiding waste, as far as that is possible, but another saving may be effected by the means employed to effect the other, which I shall now endeavour to explain.

Before either vegetable or animal food is in a proper state to be acted on by the stomach and other organs immediately concerned in the digestive process, it is necessary that the food which is to pass into the stomach should be broken down, and minutely comminuted. This is more especially the case in regard to herbivorous animals: hence we see that these animals have first a mill, the grinding teeth, by which it is reduced to a kind of coarse powder: it is at the same time mixed with a large quantity of fluid, the saliva, the quantity of which is almost incredible to those who have not had an opportunity of ascertaining it, but which the following fact will testify:—A black horse had received a wound in the parotid duct, which became fistulous. When his jaws were in motion, in the act of eating hay, I had the curiosity to collect, in a glass measure, the quantity which flowed during one minute, by a stop-watch, and it amounted to nearly a drachm more than two ounces in that time. Now, if we calculate that the parotid gland on the opposite cheek poured into the mouth the same quantity in the same time, and allow that the sublingual and submaxillary glands, on each side combined, pour into the mouth a quantity eqnal to the two parotids, we then have no less than eight ounces of saliva passing into the mouth in one minute, for the purpose of softening the food, and preparing it for digestion. But this is not all: for we find that it requires to be still farther prepared before it passes on to be digested. In the horse we find a portion of the stomach lined by an insensible coat, forming a kind of pouch for the masticated food to steep in, to be prepared to pass on to the portion where the digestion is more especially carried on;

and that that is the case we have reason to believe, first, from the circumstance that the coarser portions of the food which are taken into the stomach of the horse are found after death to be lodged in this part of the stomach; and further, that, in other animals, such as the ox and sheep, this process is still more evident. In these animals there is not only the grinding down of the food, and mixing with the saliva, but afterwards it is passed into the first stomach, the paunch, where the food is mixed with the secretions of that viscus, and separated into the coarser and finer portions by a kind of eccentric motion—which I can compare to nothing better than the motion given to coffee in the newly invented coffee-roaster, or the tossing of corn in a sieve to clean it from dust, the motion certainly not so rapid, but the effect analogous—the finer parts being passed into the second stomach, and on to the third, while the coarser, after all this cooking and tossing, is again sent up from the stomach to be still further comminuted, and is thus passed into the third stomach, to undergo farther preparation, before it passes on (in the ruminating animals) to the true digesting stomach. If this process is not completed, as is frequently the case in the horse, from the manner he is frequently driven before the digestion is completed, or from other causes, it is found that the food which is not sufficiently broken down, is not completely acted on by the organs of digestion, and which is most obviously the case with regard to grains; and the animal, in a relative proportion, derives so much the less nourishment from it. For I cannot agree with those who suppose that if seeds or grains are taken into the stomach the animal derives nourishment from it. The nutritious matter is a tangible substance: it is palpably abstracted from the food, and we can trace it through the lacteal vessels into the circulation; and I am therefore the more surprised to find any one suppose it could yield nutriment unless being digested, more especially so eminent a physiologist and pathologist as Dr. Mason Good, who, in the Physiological Proem of the first volume of his Study of Medicine, page 11, second edition, states, that "there are many substances which are so hard and intractable as to sustain the action of the digestive organs without any other change than that of being softened, or otherwise partially affected, instead of being entirely subverted and reduced to chyme or chyle. Such especially are the seeds of plants: and it is well worth observing, though it has not yet been noticed by physiologists, that while birds or other animals derive from this kind of food a very valuable nutriment, it passes through them without being completely digested. The seeds themselves that are thus acted upon, derive also a reciprocal benefit, in many instances, and are hereby

rendered more easily capable of expanding in the soil into which they are afterwards thrown as by accident, and have their productive power very greatly increased. The olive-tree has, till of late years, only been raised in the south of France by cuttings, or wild plants obtained from the woods. It was remarked by an attentive inhabitant of Marseilles, that, when produced naturally, it is by means of kernels carried into the woods, and sown there by birds which had swallowed the olives. By the act of digestion," he further observed, " these olives are deprived of their natural oil, and the kernels hence become permeable to the moisture of the earth, the dung of the birds at the same serving for manure; and, perhaps, the soda which the dung contains, by combining with a portion of the oil that has escaped digestion, still further favouring germination. Following up this fact, a number of turkeys were made by the experimenter to swallow ripe olives, the dung was collected containing the swallowed kernels : the whole was placed in a stratum of earth, and frequently watered. The kernels thus treated vegetated easily, and a number of young plants were procured; and in order to produce upon olives an effect similar to that experienced from the digestive power of the stomach, a quantity of them were afterwards macerated in an alkaline lixivium; they were then sown, and proved highly productive.

" Most of the plants found on coral islands, and in various other places, are propagated by the same means of passing through the digestive canal; and it is probable that the seeds of many of them are equally assisted by the same process. And even when they are completely disorganized and digested, the material to which their refuse is converted, and which, combined with the animal secretions that accompany it, is called dung, very powerfully contributes, as every one knows, to render the soil productive; so that, in the wisdom of Providence, animal digestion and vegetable fructification are equally dependent on each other, and are alternately causes and effects."

The fact, however is, that the birds he alludes to derived not their nourishment from those seeds which passed through them entire, but either from the pulp with which the seeds were surrounded when they were swallowed, or from the seeds which were broken down in the stomach of the animal; and, in the case of the turkeys, it is evident that, at least in regard to the olives, the pulp with which the kernel was surrounded was sufficient to nourish the animal, while the excrement when the seed escaped would serve well the purpose he has noticed. There was, however, a striking fact, which occurred about six years ago, and which I recollect meeting with in the Glasgow Courier newspaper,

that places what I have advanced beyond a doubt. The Coldstream East Indiaman, before leaving Calcutta, took on board, as is usual, a number of poultry, which were put up in the hen-coops, and plenty of barley given them. Soon after getting to sea, it was found that they became sickly, got poor, although their crop was filled, and before reaching Madras forty dozen had died. A fresh supply was taken on board, and ere they had been long at sea, they also began to fall off and die in the same manner. The loss of what was to serve for fresh provisions now excited serious attention, and the surgeon, by repeated dissections, discovered that they had all died with their crop and gizzard full of whole barley: and from this it at once occurred that the fowls, being put up in their coops, and not having been allowed any sand or gravel to grind down the food, were thus prevented from deriving nourishment from it; but how to get sand or gravel at sea, in an ocean of unfathomable depth, was a matter of some difficulty, and it was only after a long search in the hold that a stone was found, which being broken down and given to the fowls, they soon began to recruit, and recovered their health and strength. I therefore conclude, that before the food can properly yield nourishment to the animal, it is necessary that it be minutely broken down and cooked, either naturally or artificially; this must be done before digestion can take place: and I further conclude, that the more completely we do this, the more readily and completely will the nutritious portions which the food contains be taken into the system, and thus, by avoiding almost the possibility of waste, the animal will be supported in the same condition, at a less cost to the owner.

A considerable time has elapsed since the practice of cutting hay and straw and bruising oats was first recommended; but it has never as yet been, in my opinion, sufficiently practised, and the benefits of it have not been sufficiently appreciated. Some cannot see the advantages to be derived from such a practice; some will not take trouble; some find their men will not attend to it; some think their horses wont eat it; some think they wont thrive; and some are afraid it wont agree with them, and that horses will purge and get soft, if they are so fed. These, however, are all imaginary evils, which a fair trial would soon dispel.

Mr. Croal, the extensive and spirited coach proprietor, informs me, that he finds by cutting his hay he requires to give only 8lb. per day, along with 16lb. of oats, and his horses are in excellent condition; and he observes, that it is a saving in his establishment of about £150 per annum.

Mr. Isaac Scott, whose experience on turf affairs entitles his opinion to considerable deference, allows his post and job horses,

which are rather of a larger size than Mr. Croal's, 10lb. to 12lb. cut hay, with 16lb. of oats, and they are in excellent condition.

But the advantages of preparing food for horses have been pursued still further by Captain Cheyne, late of the Civil Engineers, who now holds a share in the posting establishment with Mr. D. Wright.

Finding each horse consuming above a stone of hay per day, at 1s. 4d. per stone, the straw 6d. per stone, and being constantly annoyed with the careless waste which daily occurred, he determined to give only cut hay, and he soon found that none of the horses reqnired, or were able to eat, the former quantity; he, therefore, gradually reduced it, bruising the oats also, and mixing all together.

Observing the benefits accruing from this practice, he directed his attention further to the subject, and gradually reduced the quantity of hay, and added a quantity of cut straw. He then began to consider the quantity of nutritious matter in, and the cost of, the various kinds of grain, and at length changed the system of feeding to the following. Each horse was given 15lb. of the following mixture:—

10 bushels cut straw		90lb.
6 do. bruised oats, 29 lb. per bushel		174
1 do. bruised beans		59
		323lb.
Or, of Oats	8 lb.	
Beans	$2\frac{3}{4}$	
Straw	$4\frac{1}{4}$	
	15lb. to each horse.	

And at night, in addition to the above, about 25lb. of the following mixture:—

One boll of potatoes at 7s. 6d., 5 cwt. (steamed)	£0 7 6	560 lb.
Fine Barley dust, 10d. per stone	0 2 1	36
Cut straw. at 6d. per stone	0 1 0	40
Salt, at 3s. per cwt.	0 0 2	6

The cost for each horse was, therefore, about 5d. for supper, and about 1s. for daily forage and cooking, in all, about 1s. $5\frac{1}{2}$d. During grass, each horse got about 10lb. grains, 20 lb. grass during the day, and at night 35 to 40 lb. of grass were put into their racks. On this feeding, however, they rather lost flesh, but they had been doing more work than on the former diet.

Lately, he has been using bruised barley and beans, with cut hay, as the hay is now cheaper than the straw. A man is constantly employed in preparing the food and serving it out, whose wages, and the expense of fire, are included in the above expense of feeding. With such feeding most people would have supposed

that the horses would have been unable to do fast or severe work. It would have been expected that they would not have run a stage without being fatigued; they, however, have kept their condition, and have been improved by the feeding; and although when Captain Cheyne proposed first to try the experiment, the post lads insisted the horses would not be able to do their work on such soft feeding, and thought they would purge and become washy, they soon found their fears were imaginary; and experience has now so fully convinced them of the advantage of such feeding, that their only anxiety now is to obtain a greater quantity of the mash at night. There is here, then, a striking fact, which goes far to disprove the correctness of the notions which so generally prevail regarding hard keep being requisite to good condition.

The various kinds of food upon which the horse is fed, possesses different proportions of nutritive matter. Of these, it is stated in the Treatise upon the Horse, in the Library of Useful Knowledge, as extracted from Sir H. Davy's Agricultural Chemistry, that wheat possesses the nutritive property in the greatest abundance, there being, in 1000 parts, 955 of nutritive matter; in barley, 920; in oats, 743; peas, 574; beans, 570; potatoes, 230, &c.

Now, one would suppose that the best food, from this view of the matter, would be wheat. But it is found that wheat does not suit so well as we might expect, from the quantity of nutriment which it contains; it either purges or deranges the stomach; and barley is found to have a similar effect. Oats and beans are, therefore, resorted to, as they have hitherto been found to suit best the digestive organs of the horse.

The cause of this is commonly supposed to arise from oats, beans, and peas possessing a certain degree of astringency, which prevents the food from passing through the bowels with the rapidity with which the wheat and barley does. Whether those grains have any laxative property, is perhaps a matter not so fully determined as some suppose; for, although bran, the coating of wheat, has some such effect, still the fact may be, that these grains possess too large a proportion of nutritious matter, and that they therefore excite the increased action of the bowels. The digestive organs of the horse, like the ox, &c., are very capacious, and are evidently intended to take in a large proportion of matter containing a small proportion of nutriment. And if the food, therefore, upon which they are made to live is of too rich a quality, there is, by the excitement produced, an increase of the peristaltic motion, in order to throw off the superabundant quantity which has been taken into the stomach and bowels.

It is necessary to give, therefore, a certain quantity or bulk, to separate, perhaps, the particles of nutritious matter, that the bowels may be enabled to act properly upon it. A horse could not live so well on oats, if fed entirely upon them, as when a portion of fodder is given with them, a certain bulk is required. But this may be carried too far, and the animal may have his bowels loaded with too large a quantity of unnutritious food; and nothing less than such a mass as will render him incapable to perform any active exertion, will be sufficient to afford him even a scanty degree of nourishment. A horse living on straw in a straw-yard becomes pot-bellied. Hence it is, that a proper arrangement in the properties and proportions of his food becomes a matter of important consideration.

Horses, like other animals, do not always content themselves with just eating what is necessary for their proper support; they are apt to indulge in any thing they find agreeable to their palate: and there is an immense variety in their food, if we look to the various grasses which are to be found in good old pasture, and by that indulgence they expose themselves to various diseases, and, for the time, render themselves unfit for any active exertion. If a horse's bowels are loaded with clover, or any kind of food, we know he could not gallop any great distance without injuring himself. If he has been fully fed, and is allowed to drink freely of water, and afterwards started on a journey at a smart pace, the almost invariable consequence is, that he begins to purge; he is soon fatigued, he perspires from the weight he is carrying in his belly, he gets sick, and cannot go on. The natural action of the bowels throws off the load, and if the horse is not pushed on too fast, he is sometimes able to get well to the end of his journey; but if his pace is increased, he gets sick, the load and mass contained in the stomach and anterior portion of the bowels cannot escape, and as exercise prevents and suspends the digestive process, a chemical process is set up in its stead, producing rapidly various derangements, which is too frequently followed by violent disease or death. This occurs less frequently in well-regulated coaching-stables, where a regular and large allowance of oats are given; because, as in coaching-stables, the quantity of oats is so large that little hay is eaten, the horses are therefore less liable to gorge themselves than under other circumstances: but even there, it is generally, nay, I may say invariably, considered necessary to turn the horses round in their stalls for half an hour before starting, in order that the stomach may have time to act, in some degree, upon what has been taken into it, and that it may have passed into the bowels. The animals are, by this

means, allowed time to empty themselves, which they will generally be found to do as they leave the stable, or as they start with the coach.

Under this view of the subject, it will be seen that a moderate proportion of nutritious food is only required, and that it is advisable to present it in as small a compass as will suit the nature of the digestive organs. But it would appear that a certain proportion of bulk is also necessary to the quantity of nutritious matter, to keep up the proper action of the bowels. If the food is too rich and too much concentrated, it deranges the stomach and bowels, and produces disease; if too poor and bulky, it yields not the proper degree of support to the animal, while its bulk impedes respiration, and its weight detracts by its burdensomeness from the capability of the animal exerting himself.

From these remarks it will appear obvious, that the grand desideratum is to give food containing as much nutriment, and in as small bulk as is consistent with the economy of the animal.

If this problem is solved, it will follow as a corollary, that it will be important to give that food which has been found best suited in its proportions, in such a state as is best suited for digestion. This is a point, however, worthy of consideration, and naturally suggests the question, How is the body supplied with nourishment by taking in food into the stomach? The common notion is, that much depends, as I have indeed before mentioned, on the hardness of the food; and it is a common saying, in order to show off a horse which is in condition, "that he has plenty of hard meat in him." Now, this is a very silly and erroneous idea, if we inquire into it; for, whatever may be the consistency of the food which is taken into the stomach, it must, before the body can possibly derive any substantial support or benefit from it, be converted into chyme,—a pultaceous mass; and this, as it passes onwards from the stomach into the intestinal canal, is rendered still more fluid by the admixture of the secretions from the stomach, the liver, and the pancreas, when it becomes of a milky appearance, and is called chyle. It is then taken into the system by the lacteals, and in this fluid, this soft state—and in this state only—mixes with the blood, and passes through the circulating vessels for the nourishment of the system.

The food, no doubt, when taken into the stomach, at once satisfies the animal's hunger; but if the digestion is suspended by any means, it soon proves injurious, and weakens, instead of supporting the system.

Now, if the hardest of the food must, in this manner, be broken down and dissolved before it can really enter into the

system, it must appear evident that something approaching to this solution, if done artificially, would greatly aid the organs of digestion in this process, and that thereby much exertion might be saved to the system, and, at the same time, nourishment would be more rapidly conveyed into it. It is with this view that I would recommend the general adoption of cooking food for horses and cattle.

When the food is broken down by cutting the hay and straw, and bruising, boiling or steaming the oats, not only is there less waste, by the whole being used as manger meat, but much labour is saved to the animal, in having the tough dried hay, and hard oats, masticated for him, and in a state almost prepared for digestion; and, as regards the oats, all the nourishment they can afford is readily yielded to the digestive organs; for not only may I refer to the fact already stated regarding the poultry on board the Coldstream Indiaman, but I may also observe the fact which we find, that unless the grain is broken down, or otherwise killed by boiling, it is not acted on, and will grow as readily after having passed through the horse, as the olives did after passing through the turkeys. Oats, like every other seed, is possessed of vitality; and it would appear that the organs of digestion, and their secretions, do not act upon bodies possessing it. Were it not for this exception, the gastric juice, which acts upon and dissolves every dead matter taken into the stomach, would act upon the stomach itself; but it is not possessed of this power. Worms are, from this cause, also allowed to live in the stomach, but, when dead, become acted upon like other dead matter. Hence we often find worms, when destroyed by medicine, disappear, although we have not observed them pass with the fæces.

It is, therefore, necessary to destroy the life of the food taken into the stomach before it can yield nourishment to the animal. This may be done, as has already been stated, by bruising, and the finer it is bruised the better, because it is capable of being more completely mixed with the cut straw or hay, and the whole is then more easily eaten; but as the experiments of Captain Cheyne have shown, it may also be steamed or boiled, and given with the same advantage; and from what has been stated regarding digestion, it must be pretty obvious that this kind of cooking brings the food nearest to the state of being readily dissolved and acted on by the digestive organs. The only objection which will at once occur, I know is, that boiled or steamed meat will incline a horse to purge: this, however, is not so much the case as many, without trial, may suppose; and where it does occur, it is perhaps owing to too large a quantity being given at

one time, as indeed is almost invariably the case, for stable-men, when they give boiled food, always suppose it necessary, at least the practice is, to give nearly double the quantity or more at a time that they would think it proper to give of raw food; but if the rich cooked stewed food is mixed with a less nutritious and raw material, the whole of the boiled is taken into the system, without producing the laxative effect. Nay, more, it sometimes proves, in cases of horses which have a natural tendency to purge, that by a judicious use of soft feeding this is overcome. Captain Cheyne has a grey horse of this kind, and it was feared that he would not agree with the feeding; but it is found he now does his work better than ever he did, and with less tendency to a laxity of the bowels than formerly; and when I saw him a few days ago, he was as fat on the rib as any horse in working condition ought to be.

All horses on this restricted feeding are found to be light in their belly; but while this is the case, the appearance of their coats, the quantity of fat on their ribs, and the manner they are able to do their work, shew that they have sufficient nourishment, while (what is the subject of the most important consideration with me) their dispensing with the doctor, shews that their health is most materially improved by it. In conclusion, I shall only at present mention, that as I was passing Mr. Croal's office, two or three days ago, and observing a pair of horses, as fresh as racers, in one of the pair-horse-coaches, he observed, what was worthy of notice, "There's condition for you," and, pointing to about two bushels of oats and cut hay on the coach, "this is their allowance for the night, and which is sent out regularly every day to the out-stages."

If such, then, is the fact with regard to horses doing fast work, the advantages which might be obtained by a similar plan being adopted amongst farm-horses must be too obvious to require further argument.

CASES OF FISTULOUS WITHERS TREATED BY PRESSURE.

By Mr. Alex. Gray, *V.S., Edinburgh.*

Gentlemen,

If you deem the following cases of poll-evil worthy a corner of The Veterinarian, it would not only be gratifying to me, but in my opinion would forward the cause of humanity towards our suffering and uncomplaining patients. The method of cure recommended by almost every author is the scalding

mixture. Can any practice be more barbarous? It is only fit for demons. I blush to think that a mode of proceeding so unscientific should be still recommended; for to the most common observer it would reflect on the profession the grossest ignorance, and involve it in utter disgrace. The method of cure I adopted occurred to me from the circumstance of seeing a person with a deep-seated sinus in the leg: after a great many remedies had been tried without success, recourse was had to *pressure*, and with the happiest result.

About the year 1816, I was in the habit of attending the stud of the late Earl of Morton. Being at Dalmahoy one day, I met his lordship's land steward: he asked me to go to the farm, and look at a bay cart-mare, which they had consigned to the kennel. I accordingly went, and saw the said animal, and found the top of her neck much enlarged, accompanied by two deep sinuses, which, upon inquiry, I found to have been running for the last twelve months, nothing having been done, with the exception of cleaning away the matter. I proposed to the steward that she should be sent to my own stable, so that she might be more under my own immediate care, and that I would give her a fair trial, not with the infernal scalding mixture, but upon scientific principles; and I am proud to record, that the result fully answered my most sanguine expectation.

The mare was sent to me, and I proceeded to examine the extent of the disease. I found two deep sinuses, one on each side of the neck, the bones of which could be distinctly felt with the probe. After cleaning away the matter, I took a scalpel, and laid both orifices open in an oblique direction downwards: then, having fomented the parts with warm water, I dressed the wounds with tincture of myrrh and aloes; and in order to apply *pressure* to the parts (for in this I founded all my hope of success), I had two pieces of wood prepared, about twelve inches long and three broad, thicker in the middle than at the edges, which were rounded off, and also a long flannel bandage, four inches broad. I then placed two pledgets of tow next the wounds, putting on the pieces of wood one on each side, and then applied the bandage over all, and as tightly as I could without impeding deglutition. It is necessary, while putting on the bandage, to keep the nose extended, in order to adapt the bandage more perfectly to the part, and apply it more closely. I removed the bandage night and morning, and had the parts well fomented and dressed with the tincture; and in the course of four weeks the mare was well, and returned to her work.

The second case came under my observation about a year after the foregoing. It was a grey cart-horse, the property of Mr.

M'Nab, of Cupar, in Fife. This was also an old and inveterate case, and had been under the treatment of some person in the neighbourhood for a considerable time. I proceeded with this in the same manner as the former case, and left him under the care of a very respectable country practitioner, with proper directions, who, in the course of a very few weeks, sent me the gratifying intelligence of the perfect recovery of my patient.

A CASE OF GASTRITIS.

By Mr. W. C. Spooner, *Blandford.*

In July last, I was sent for at night to attend a mare, belonging to a neighbouring gentleman, that I understood had been ill four or five days. She presented an exceedingly dull and stupefied appearance; her eyes were suffused with tears, eyelids swollen and nearly closed; mouth hot; fæces rather hard, and cased in mucus; abdomen somewhat enlarged; pulse 55, and oppressed. The mare was full of flesh; had been taken up from grass about three weeks previous, and had been worked and fed with corn, without having had any physic treatment. Venesection lb. xii, aloes ʒvii, and a fever ball composed of digitalis, nitre, and tartarized antimony, ordered to be given every four hours.

2d day.—The dull and heavy appearance of the mare is entirely gone—the physic has not acted—the fæces are voided in small quantities; they are hard, and accompanied by much mucus—abdomen still extended; pulse 68. Venesection lb. viii; oily injection every six hours; fever ball continued, and linseed administered every four hours: stimulating liniment to be rubbed on the abdomen. I saw her again in the evening, but she was no better.

3d day.—The mare this morning is in much the same dull state as on the evening I first saw her; pulse 60. Venesection lb. viii; abdomen blistered: other treatment continued. In the evening, the breathing, which till now had been tranquil, was much accelerated. Physic begins to act.

4th day.—The patient much worse; pulse 94; breathing very quick, and extremities cold: but the mare looks lively about the head. In the evening the pulse was 100, and the symptoms altogether worse. The mare died during the night.

Post-mortem examination.—I considered the disease, from the commencement, as affecting the alimentary canal, and therefore was not surprised at finding the stomach excessively inflamed, and a thick deposit of coagulated blood between its coats, affect-

ing more particularly the cuticular portion. The bowels were inflamed in a minor degree, as well as the lungs and liver.

Gastritis, I believe, is rather a rare complaint among horses. I never witnessed before a case with the same symptoms* and post-mortem appearances; and the striking alteration the mare presented in her appearance on the second and fourth day from that of the first and third, deserves note. I at first thought that the mare was affected with the peculiar fever (gastro-enterites) that existed somewhat in this neighbourhood during the spring, and much in the summer of last year; but the symptoms, after the first day, were decidedly different. The cause of the disease I should ascribe to the mare being taken from grass, and fed with dry and stimulating food without any preparation.

To the Editors of "The Veterinarian."

Gentlemen,

I SEND you an answer to Mr. Dick's criticism on me. Had he conducted it upon a fair principle, or had shewn any just cause for making any criticism or comments at all, I should not have been justifiable, perhaps, in troubling you. But it must be quite evident to all who have read Mr. Dick's account, that, with the load of accusation and abuse heaped upon me by him, I cannot appear again in THE VETERINARIAN as a respectable, or even *honest* writer, without first endeavouring to clear myself of such imputations. I trust, and indeed have no doubt, that the publication of the following statements will have the desired effect. I must, therefore, particularly request you will do me the favour, I had almost said the justice, to insert it in the ensuing number of THE VETERINARIAN.

I remain, respectfully yours,

JAMES COWIE.

Mains of Halkerton, Kincardineshire, N.B.
Oct. 2, 1832.

IN the last Number of THE VETERINARIAN I find some remarks by Mr. Dick, of Edinburgh, intended as a criticism upon a report of a case of jurisprudence, which you did me the honor to insert some months ago. But so far removed from the spirit of just and honest criticism towards my report do I conceive Mr. Dick's remarks to be, that, in duty to myself, I am bound to make a few observations upon them, which I hope will free me

* The symptoms were different from those described by Mr. Blaine.

from those unjust and totally groundless imputations which Mr. Dick has so studiously endeavoured to cast upon me. I flatter myself I shall be able to prove, that the fever-heated zeal which Mr. D. appears to possess for the professional welfare of his diplomatic progeny has materially flattened his "intellectual organ," I will not suppose that it has led him wilfully to transgress the rules of common civility and candour.

Mr. Dick begins with a lecture on the importance of publishing detailed accounts of the cases of Veterinary Jurisprudence, on condition that no remarks shall follow or be intersected in these reports; that is to say, that no elucidation of the subject is to be admitted, or inquiry made into the merits of the evidence of the witnesses, or the decision of the judges. Having somewhat overleaped this sacred fence of Mr. Dick's, and more especially having had the presumption to extend my observations to the evidence of one of his *own* (former) *pupils*, he becomes impatient, feels touchy, and indignantly "turns round on this self-elected judge," and exultingly asks, "what he knows about chords?" Calmly, Mr. Dick; authoritative language may do in a lecture-room, but somewhat more is necessary in a dispassionate inquiry, whether a "criticised critic" be engaged in it or not, provided just and true conclusions are the objects aimed at. I said that it was doubtful "whether the horse laboured under the chords at all;" and my doubts were partly grounded on the information Mr. Dick himself gives in his evidence. And let any one read over the contradictory jargon of some of the witnesses; and let him say whether, to say the least, it was not a matter of doubt as to the real nature of the horse's disease. Mr. Dick and I had only the evidence of farriers to guide us in our opinions; and how much or how little either of us chose to give credit to such authorities can be of little or no consequence to any body; and I do not care a straw about conceding the point to Mr. Dick, as it was at best only a mere matter of indifferent speculation in me. The sudden "turn round" and charge of Mr. Dick's there, affects nothing, nor any body, not even the poor horse, for he recovered. Mr. Dick only shews his extreme sensibility of offence: this, the "head and front of my offending," puts him quite out of humour; so that, instead of coming directly to the proper point, by way of preamble he falls into a conjured sort of reverie about quack doctors and phrenologists, and makes a wanton and groundless attack upon the motives which, in his opinion, induced me to publish the report at all; and then endeavours to prove, that I have misquoted the evidence, and made a "garbled statement;" and the conclusions which he draws from his own delusions or inventions have persuaded him,

that I am guilty of mis-statement, dishonesty, and quackery. How far I deserve such gross accusations does not appear from the logic of Mr. Dick. "The galled jade winces." It is bad policy to yield to that spleenish spirit of retort, which is sometimes adopted where sound argument is not available, and which is persisted in with a violence proportionate to the palpable want of argument. This is unworthy of Mr. Dick's high reputation. Let him who can, solve this question.

I shall proceed; and, first, as regards my motives. Mr. Dick insinuates that professional jealousy prompted me to report the case; that is, by endeavouring to underrate my neighbour practitioners, I would advance my own interests. No such feeling, however, ever entered my breast. I live in good enough terms with them all; and if I had thought my remarks would have injured them in the eyes of their employers, they should never have appeared in print. I am always ready to assist or consult with most of them when required. I may be allowed to add, that I can have no cause of jealousy. I have an occupation independently of the profession; and while I practise among my friends and neighbours, I shall do so without any objects of a pecuniary nature. My motives, therefore, in sending you the report, was simply that which I stated in the preamble of my former communication, and which I need not again repeat. I next come to consider my "incorrectness in reporting." Even in this, by Mr. Dick's own shewing, my principal, if not only error, consists in not having reported *more fully* the evidence. Really, gentlemen, I thought I had occupied full much of your space as it was; and if I had sent you the whole evidence, which contains thirty or forty pages, it would have required more than all your space together. It was necessary, therefore, to abridge; and considering that I only took hasty notes of the depositions in the clerk's office on a court day, I think it will appear that, whatever slight errors I may have committed, might have arisen from a misinterpretation of the abbreviations I had taken; but we shall follow them out, and see if they really deserve any notice.

In the first evidence Mr. Dick pretends to set me right with I detect him in the very same fault of which he accuses me, viz. of abridging the evidence. He has repeated all the rational part of Beattie's evidence, which just amounts to my summary—"he gave the horse laxative and tonic medicines;" and made us understand that he has given the whole, and that my account is fabricated. So far from this being the case, he has omitted my report, which is correct almost to the letter. The alterations are these: for "all over," *read* "over the body;" and for "evident," *read* "general." In the next evidence, I omitted mentioning

the time when Low was called to the horse. Mr. Dick's account runs thus: "He (Low) was called to visit the horse after he had been ill for sixteen days." The evidence says, "he was called on the 27th day of March." Where Mr. Dick gets his calculation of "sixteen days" I don't know or care; but he should have corrected me by the words of the evidence.

The next error is, having inserted the words "most approved." These were not certainly used by the witness; they must have been marked in the quotation inadvertently, instead of, as originally intended, a prefatory remark. But it is a matter of indifference whether the witness made use of them or not; the presumption is, that he was to detail the remedies most approved in his experience, and the omission or insertion of the words, while they must have been understood, could have been of no moment whatever.

Regarding my report of the third witness, my *errors* are equally trifling and unimportant. Mr. Dick discovers a manifest difference in the meaning of the sentences, "horses in it" (the disease), and "horses affected with it." I can discover none. Mr. Dick then, with breathless anxiety, leaps over two or three witnesses to get at his darling pupil, David Smith, where we have contracted hoofs most copiously dealt with for the first time. Mr. Dick acknowledges his pupil, according to my account, to have given "opinions which are sufficiently absurd." Do Mr. Dick's corrections, or rather additions, improve him? We shall see. Mr. Dick, observe, corroborates me so far as I go; but he has these sentences in addition: "That contracted hoofs is no symptom of chords!" This is direct nonsense, and conveys no meaning whatever: he confounds symptom with cause. "That said complaint does not generally follow contracted hoofs!" *Any* blacksmith in Christendom would have sworn to the same. "That said horse was nowhere disfigured in his appearance by cutting or otherwise." Of equal importance to our subject as if he had sworn to the particular colour of the horse. The rest of the evidence merely goes to prove, that neither sleepy staggers nor strangles are the same as chords. There is a sentence which Mr. Dick omits: "That the term chords is more properly called tetanus;" which, in common acceptation, means *acute* tetanus. Mr. Dick himself calls it chronic tetanus. Without a word of comment, I shall leave your readers to judge whether Mr. Dick has relieved Smith from or confirmed him more in his character of "absurdity."

Having finished my strictures on the two reports, as furnished by Mr. Dick and myself, I would ask, what is the difference of the two in accuracy of statement? None at all worthy the

notice of any truly impartial critic. I have inserted nothing which, upon reference to the original records, an exact copy of which is now in my possession, as lately sent me for the present occasion, is not fully substantiated, if not, as in one or two instances in the exact words, at least to the same meaning; and no one can say I have chosen extracts which, when separated from the context, bear a different meaning or construction. Is Mr. Dick, then, justifiable in employing the criticism and language he has done towards me? Is it consistent with common professional courtesy? Is it *just* that, upon so slight grounds, one member of the profession should traduce another in the scurrilous manner Mr. Dick has done me? I presume not: and I throw back his imputations upon himself, as totally uncalled for, undeserved, and, under all the circumstances, quite unworthy a gentleman filling, and deservedly so, the honourable situation he does. Mr. Dick must not think that, because his reputation is considerable, and a lecturer besides, he can, at his own discretion, command, criticise, or abuse with impunity, his less able and less experienced brethren in the profession who may have crossed the Tweed to prosecute their studies. Shall they submit to be made martyrs at the shrine of the Edinburgh veterinary seminary every time they dare call in question, either professionally or otherwise, when occasion occurs, the conduct of any of its members? I hope not. Presumption it might be in me to question the ability and practice of Mr. Dick, which I have never done; but I flatter myself it would not be so in respect to any of his pupils I have met with in this part of the country.

One word more. Mr. Dick finishes with a misrepresentation; I shall finish by correcting him. "Mr. Cowie is wrong in condemning the measures adopted by those who treated the case, because he afterwards recommends what they had done, with the exception of the use of tonics." Where does Mr. Dick find such "recommendation" recorded by me? Nowhere! I approve of the lenient treatment adopted in such cases by Mr. Dick; but, regarding the farrier's treatment, my words are, "certainly nothing of an efficient nature was done to the horse in question." I have never been taught, elementary nor experimentally, to cut tails, labii muscles, blow up the cellular membrane, &c. for the cure of diseases, and shall leave "the grossest quacks that ever pretended to physic," and such like, to do so; and refer them to Mr. Dick, of Edinburgh, for a justification and character.

A SERIES OF ESSAYS ON THE BLOOD, BLOOD-VESSELS, AND ABSORBENTS.

By Mr. R. Vines, *V.S., Royal Veterinary College.*

No. V.

The Nature and Functions of the Lymphatic and Lacteal Absorbents (continued.)

On taking a survey of the creation, we find that there exist a variety of different animals, in which both *absorption* and *deposition* are going on, and yet throughout their circulatory system there is not the least particle of red blood to be seen. Animals of this kind are without a brain and spinal marrow, and are denominated *transparent or white-blooded:* they are, by comparative anatomists, divided into different classes, or great families, as the *mollusca articulata**, &c.

If from white animals we turn our attention to such as are

* These are the varied classes of animals in which it is stated that the *lymphatic absorbent vessels* have not, as yet, been *discovred;* and yet physiologists are well aware that these animals possess a circulatory system of vessels, which, in many, as in the higher orders of animals, may be seen by the naked eye; and they are also well aware, that there is *absorption* and *deposition* continually going on, yet they do not admit that there is a *separate system of vessels set-apart for that sole purpose,* as in those of the higher orders of animals, or, in short, as in those in which both *red* and *white* blood are known to circulate.

The fact is, Mr. Hunter's *theory,* as regards the *white or transparent veins,* more commonly called the lymphatic absorbents, from considering them as neither belonging to the *arterial* nor the *venous system,* but a distinct and separate system of vessels, viz. the sole absorbents of the body, and that the *red* or *real* veins had nothing to do with that function whatever, has, in my idea, been the means of leading them into error.

The reason of the lowest orders of the animal creation possessing so simple a system of vessels, appears to me very evident; namely, that these animals have their blood only of *one quality,* such as *transparent* or *white;* they, therefore, require only such a system of vessels as are the best adapted for the circulation of transparent or white fluids, and these, I should say, are a simple system of *transparent arteries* and *veins,* of the *same character as those vessels* which *belong* to all the *transparent* or *white parts* of such animals which possess blood of *different qualities,* such as *white* and *red.*

Hence, then, as in white-blooded animals there is only one kind of blood and one kind of bloodvessels, and those of the most simple form, such as *serous arteries and veins,* these *latter,* I contend, are similar in character, and of the *same nature,* as the transparent or *seriferous absorbent lymphatic veins* which belong to all the different classes of animals of the higher orders of the creation, and which possess blood of different qualities, as *white* and *red.*

called *red, or cold-blooded*, as *fishes* and *reptiles**, we find that, although they possess red blood, yet the greater portion of their bodies are supported by blood of a transparent or white colour; blood of a red colour existing principally in those parts of the circulation nearest to the centre of the system, as the liver, heart, &c.

On the other hand, as we proceed to the more complicated part of the creation, such as are commonly called warm-blooded, as them mammalia and man, we find that they possess *red and white blood* likewise, but that the *red* parts of their bodies by far exceed those of the *white* ones. In the former instance, we include all the strong and more powerful parts of the body, as the *muscles, skin, mucous membranes*, some portions of the *larger bones*, &c.; in short, all the various parts of the body which derive their support from blood of a red colour: while, in the latter instance, we include all the *white* parts of the body, which Galen and the ancients distinguished by the name of *spermatic*, as the *tendons, ligaments, cartilages;* also the *serous, cellular*, and *synovial membranes*; likewise the greatest portion of the osseous system; in short, all the various parts of the body which are supported by *white* or *transparent blood*.

Most of these white parts just mentioned were considered as not possessing any bloodvessels, and, of course, as not to be nourished by the blood, until, about the year 1700, Ruyssch, the celebrated anatomist, first demonstrated, by his minute injections, that even the *compactest bones, cartilages, tendons, ligaments*, the *finest membranes*, &c., are all furnished with arteries, in a similar manner to those of the red parts; and, of course, that they derive their nourishment from, and are supported by, white or transparent blood.

Now, that we are fully aware that both the *white* and *red* parts of the living body are nourished and supported by blood, and that the blood in the *higher orders* of the animal creation is not only distributed to these different parts of a *red*, but also of a *white* colour, we must necessarily conclude that this *transparent* or *white-coloured blood*, which is for the purpose of nourishing and supporting all the inferior parts of those animals which possess also blood of a red colour, is also of a similar nature to the transparent or colourless blood, which belongs to, and supports, the whole system of all those animals that are

* Mr. Hewson was one of the first who investigated and described the lymphatic vessels in fishes and amphibious animals.—See *Philosophical Transactions*, 1769.

Mr. Hunter and Hewson were also the first who investigated the lymphatic vessels in birds.—See Hewson, *Philosophical Transactions*, 1768.

called *white-blooded,* and are considered as the lowest order of the scale of creation.

In both instances, that is, in the *entire system* of *white-blooded animals,* as also in the *white* or *transparent parts* of such as are termed *red-blooded,* as there are transparent or colourless vessels adapted for the conveyance of nutritive fluids to and from these parts, and as it is well understood that in each, during the living state, there is absorption and deposition continually going on, therefore, although the Hunters might have carried their theories too far in considering the white or lymphatic veins of red-blooded animals as a sole and separate system of absorbent vessels, yet, in justice to them, it must be confessed, that they were the first in this or any other country who taught that these vesselss posessed the faculty of absorbing from serous surfaces as well as other parts of the body ; for, prior to this time, these lymphatics were considered as only a system of serous veins, and as having no share in the function of absorption whatever, and the physiologists of those days believed that the real veins were the sole absorbents of the body.

How the Hunters and their followers could have been led into such an error, in considering that the red veins had no share in absorption, and that the whole of the absorptions of the body were carried on by the lymphatics, I cannot possibly comprehend ; and more particularly, when they were so well aware that these *red veins* took their origin by open mouths, and, consequently, must absorb from the *cells of the spleen, corpora cavernosa, penis,* the *maternal portion of the placenta,* &c. Here are several parts from which they well knew that they took their origin, and from which they must absorb ; and yet, in opposition *to these facts,* they grounded their theory on the following positions :—

First, that mercury, when applied to the surface of the skin, was found to become absorbed ; and that, consequently, this absorption must have taken place by the lymphatics, although they at the same time must have been fully aware that no one had ever discovered that the lymphatic vessels arose by open mouths from those parts." This is a position which I cannot grant them, but must give it in *favour of absorption* by the *extreme radicles* of the *real veins,* because I can prove, by minute injections, that these *red veins* take their *origin by open mouths* from the *external surface of the skin,* immediately under the *cuticle,* or the external covering of the *cutis,* or true skin, and which has never been proved to be the case with the lymphatics, at least in the warm or higher orders of animals. The idea, therefore, of cuticular absorption by the lymphatics must fall to the ground.

"Second, that collections of water, when formed in the abdomen, cellular membrane, &c. are occasionally taken up, conveyed into the circulation, and ultimately became passed off again by excretion." This is a position which I willingly give in favour of *absorption* by the *lymphatics;* first, because I cannot discover that the *red veins* take their origin by open *mouths* from the *serous* and *cellular* cavities of the body; secondly, because the lymphatic vessels are very numerous, and, as I consider, the *real white* and *absorbing veins belonging to those parts;* and, thirdly, in the natural state of the circulation, there are very few, if any, of the *red* veins to be observed in those white or transparent parts; while, on the contrary, the lymphatic veins are very numerous; and, although no one has ever been able to discover that they arrive by open mouths from those parts (no doubt in consequence of their extreme minuteness), yet, still I consider them as the proper absorbents belonging to such parts.

3d.—"From the great analogy between the lymphatics and the lacteals, both as regards their coats, valves, manner of ramifying; and also from the lacteals being known and admitted to take their origin from the inner surface of the intestines, and being for the purpose of absorbing the chyle from these parts." All this I most freely admit in favour of *absorption* being carried on by the *lymphatic vessels;* and am only surprised that, at the present day, there can be such a physiologist as Magendie, who doubts that the process of *absorption is at all carried on* by the lymphatics; and more particularly, when he must be fully aware that there is a very considerable portion of the living body denominated by the term *spermatic,* such as the *tendons, cartilages, ligaments, serous and cellular membranes,* &c.; and yet in these, like the red parts, there is both absorption and deposition always going in, while, in the majority of them, there is not the least particle of red blood, nor any trace of a real vein to be seen; but, on the contrary, there are found to proceed from all these parts numerous *white veins,* or lymphatic vessels. It appears, however, that Magendie is so far taken up with his theory of absorption by the *red veins,* as almost to believe, according to the *old idea,* that the lymphatics are only a system of serous veins, and that the simple office which these vessels perform is to receive from the arteries, and return to the heart, the transparent blood from the extreme parts of the arterial system: thus leaving out of the question the idea that these vessels are also the *proper absorbing veins* belonging to these white parts, and which is further shewn from their intimate connexion with, and the numerous ways in which these vessels proceed from, all the

various serous and synovial cavities of the body, evidently shewing that they perform other important offices besides those stated by Magendie.

Magendie (in opposition to the third position of Mr. Hunter, wherein, from analogy, this physiologist attempted to prove that the lymphatic vessels really do absorb from serous surfaces, &c., in consequence of the lacteal vessels being only a part of the lymphatic system, and it being known and admitted that they took their origin by open mouths, and absorbed the chyle from the inner surface of the intestinal canal) has stated that the lacteal vessels are incapable of taking up any thing else except the chyle from those parts. Now this, in my idea, is proving nothing; for he might just as well have said, that the lymphatic vessels belonging to the serous membranes, such as the pleura and peritoneum, are incapable of taking up any thing except the serous fluid belonging to those parts.

Before, however, I proceed further, I shall notice some of the principal experiments which he has performed on this subject, and which, in my idea, prove nothing against lymphatic absorption; and only go to shew, that the real veins are capable of performing the faculty of absorption, and which I have not the least doubt of.

Magendie informs us, that Dr. Sogelas and himself took a portion of the intestine of a dog, and insulated it from the adjoining intestine by two incisions; that they left entire a mesenteric artery and vein, besides a number of the lacteal vessels; that in this dog they divided the vein, and by that means gave access to the venous blood, while, in another dog, they passed a ligature around the vein, so as to stop the current of venous blood; that they then introduced into each detached portion of intestine, and at the same time making these parts secure by proper ligatures, a quantity of the watery solution of the alcoholic extract of nux vomica; they then returned each portion of intestine into the bellies of the dogs, and in the latter instauce perceived no poisoning effect, after having waited the space of one hour. After this, they re-established the natural circulation, by untying the vein, and then the poisoning took place in the space of six minutes.

Magendie infers from these and some other experiments, which I shall notice hereafter, that the red veins are the real absorbents of the body, and that the lymphatic vessels do not absorb; and that it is very doubtful whether it is the office of the *lacteal* vessels to absorb any other fluid except that of the chyle from the inner surface of the intestinal canal: forgetting, perhaps, that he has also informed us, that the function of absorption is only a

mechanical one, and that he laboured for twenty years before he arrived at this idea, no one having ever dreamed of it before*.

Now, how Magendie can ridicule the idea that the mode of absorption is not a *vital phenomenon*, and also contend that there is not the least difference between the *mode of absorption* in the various tissues of the body, either in the *living* or in the *dead state*, I cannot possibly comprehend; when, at the same time, this physiologist is under the necessity of admitting that the *lacteal absorbents* take up *with judgment* one substance, and at the same time *refuse another*. He says that "extreme repugnance to confess our ignorance, and a tendency to admit
contrived to fill up the vacuities in science, are intellectual phenomena as remarkable as they are injurious to the progress of knowledge. It was not known how absorption was performed: instead of confessing as much as one which might have proved a stimulus to new researches, some person thought proper to assert *that the living tissues cannot admit of absorption as after death; that there are absorbing orifices which take up with judgment certain substances and refuse others*. This little story pleased many physiologists: they repeated it; *believed firmly in it*; and, from that time forth, none knew that the *mechanism of absorption* was still unknown, and, consequently, none ever thought of making it the object of research."

But let us return to the experiment: Magendie informs us, that the poisoning did not take place until after the ligature was removed from the vein, and the current of the circulation was again established. I suppose that he means to say, that the effects of the poison were not capable of destroying life, and that, in removing the ligature, death from the absorption of the poison took place in six minutes.

Now my idear, in this instance, is, that the lacteal vessels really did absorb a portion of this poison, but that the absorption was *so slow*, in *comparison* with that of the large mesenteric vein, as not to be of sufficient effect as to immediately destroy the life of the animal. For it is a well known fact, that if a *drachm of hydrocyanic acid* be introduced by a small piece of sponge into the cellular membrane of the extremity of a large ass, bp making an incission through the skin, and if a ligature be applied, of a moderate degree of tightness, around the extremity, above the part where the opening is made, no poisoning whatever will take place, but absorption will gradually go on, and which is evinced by the animal becoming more dull and stupid than usual; and which, after a short time, will gradually

* Magendie Phy. p. 350.

go off, and the ligature may then be removed without any evil consequences ensuing. While, on the contrary, if a similar quantity be introduced in the same way without a ligature being used, death, in the course of eight or ten minutes, will be the result: shewing, therefore, that it depends on the quick manner in which any poison is introduced into the circulation, and *no proof whatever against the lymphatic vessels performing the function of absorption* as well as the red veins.

Although Magendie admits that the lymphatic vessels are a system of serous veins, yet it is most surprising that he should doubt that they possess the faculty of absorbing; and this arises, no doubt, in consequence of his not having found the effects so certain, and follow so *rapidly*, as when absorption of any poison takes place in those parts, as the mucous membranes, &c., in which there are innumerable radicles of the real veins. Neither does he appear to take into consideration the extent of the surface necessary to produce a slow or a quick mode of absorption; nor whether there is any difference between absorption from a serous or a mucous surface, forgetting that, in the former, these membranes in the natural state of the circulation possess arteries and veins, which convey transparent or white blood only: while, in the latter instance, in the mucous membranes the blood is of a different character, the circulation much more strong, and, of course, when absorption takes place, as in the latter instance, it must be more effectual than in the former.

[To be continued.]

THE VETERINARIAN, DECEMBER 1, 1832.

Ne quid falsi dicere audeat, ne quid veri non audeat.—Cicero.

The index, which must always form a part of the December number of our periodical, and the length of some of the preceding articles, have compelled us to omit our Review, Extracts, Miscellanea, and, in a manner, our Leading Article.

Mr. W. C. Spooner's case of Strangulation, with an engraving, shall appear in January.

We cannot admit the communication from Juvenis: it is far too intemperately worded; and it is not authenticated by the

name of the writer. Supposing his shewing to be right, a remonstrance addressed to the proper quarter would have the desired effect. We do, however, agree with him, that if there are two officers in an institution paid for superintending the anatomical researches of the pupil, it is not right that he should be compelled to go beyond the walls of that institution for the instruction and guidance, without which he is liable to perpetual error.

Our friend, Mr. Cowie, has appealed to our "justice" with regard to the controversy between him and Mr. Dick, and therefore his reply to that gentleman has been inserted; but we confess that we should be very loth for our Journal to be made the vehicle of angry and personal contention; nor shall it be so. These Scotch records of evidence are voluminous and prosing beyond all common patience, and almost beyond credence. The records in this cause would fill, we believe, two or three of our numbers; and to make every part of them agree together, would puzzle far wiser heads than ours. Mr. Dick, we are persuaded, will set every thing of importance right in his rejoinder, if he thinks proper to make one; and with that the controversy must cease.

And now, at the close of the fifth year of our literary connexion with our readers, "we wish them the compliments of the season;" and if but half the promises which have been lately made to us are fulfilled, that connexion, which we trust will last for many a long year to come, will be increasingly pleasing and useful. We will only remind our old and our embryo correspondents, that we are arrived at that desired point, when controversy —ill-tempered controversy, at least—may begin to cease among us; and that all that is now wanted to attain the common, the important object of our readers and ourselves, is the freer communication of scientific and practical essays. Our pages will, as heretofore, be ever open to the exposure of error, although ourselves may be the parties accused. Our profession will be still our motto; its enemies—open, concealed, interested, or malignant—will be ours; but its cause will be best promoted by union among its friends.

INDEX.

ABOMASUM of cattle, fluids usually pass into the, 161
Abscess of the heart, a case of, 252
——— in the lungs, a case of, 264
Absorbents, account of the, 121
——————— their functions and diseases, 266
——————— functions of the second class of, 407, 433
——————— history of the early opinions concerning them, 552
——————— different character of inflammation in them, 268
——————— the manner of demonstrating, 122
——————— Mr. Vines's essays on them, 406, 433, 551, 601, 693
Absorbent glands, account of the, 121
Absorption, believed by J. Hunter to be solely carried on by the lymphatics, 553
——————— not performed on the principle of capillary tubes, 605
Adhesion between the pleuræ, theory of, 662
Æthmoid-bone, description of, 6
——————— comparative bulk of, 73
——————— its development in proportion to the acuteness of smell, 7
Age, the, at which horses are most liable to glanders, 199
Air often respired, a cause of glanders, 138
Air-cells of the lungs, description of the, 625
——— appearance of, when ruptured, 628
Aiton, Mr. extracts from his Survey of Ayrshire, 659, 660
Alfort, report of the School at, in 1831, 46
Aloes, on the medicinal effect of, 233
Alteratives, the necessity of, in getting horses into condition, 648
Amaurosis accompanying or following apoplexy, 172
——————————————— hæmorrhage after castration, 171
——————————————— stomach staggers, 169
——————————————— suppression of milk, 172
——————————————— utero-gestation, 173
Ammoniacal vapours a cause of glanders, 138
Anasarca, observations on, 253
——— a case of accompanied by ascites, 256
Anatomy of the Horse, by Mr. W. Percivall, 14, 61, 121, 181, 241, 301, 361
——————————————— review of, 584
——— importance of the study of, 584
Aneurism of the right auricle of the heart, 53
Animal heat, Mr. James Turner's theory of, 491
——————————————— a reply to, 619
Anonymous correspondents, address to, 162
Anterior maxillary bone in cattle, 3
——————————— the dog, 3
——————————— horse, 3
——————————— swine, 3
Antimony the best diaphoretic and alterative, 649

Aorta, account of the, 14
Apoplexy, amaurosis following, 172
Appendices of the diaphragm, described, 615
Arteries, general account of the, 14
——— seriferous and sanguiferous, difference between, 604
——— table of the, 15
Artery, pulmonary, account of the, 14
Arytenoideus muscle, account of the, 451
Arytenoid cartilage, account of the, 426
Aryteno-epiglottideus, account of the, 451
Ascites accompanying anasarca, 256
——— in a mare, a successful case of, 189
Aselius, the discoverer of the lacteals, 435
Ascot-meeting, account of the, 422
Association among brutes, instances of, 536
——— of ideas in brutes, illustrations of, 282
Atmospheric influence has much to do with glanders, 199
——— pressure, how far concerned in respiration, 619
Attenburrow, Mr. his evidence respecting the chords, 296, 571
Attention, illustrations of, in brutes, 280
Auscultation, importance of, in veterinary practice, 47
Backely, the Hottentot, curious account of, 411
Barbarity, horrible, by a cowleech, 624
Barley, the proportional nutriment of, 681
Bars of the foot, description of the, 310
—— the, and inner corners of the foot, should be spared in paring out the foot, 581
Bastard strangles, on, 345, 349
Beans, excellent for horses in small quantities, 649
——— the proportional nutriment of, 681
——— supposed to contain a certain degree of astringency, 681
Beattie, Mr. his evidence respecting the chords, 295, 570, 690
Betting, the state of, on the principal races, 229, 480, 540, 600
Birds, the process of digestion in, 678
——— destroyed by being deprived of gravel, 679
Bitch, a case of maternal affection in, 531
Blacksmith, a sketch of the village, 423
Bleeding, a singular case respecting, 639
——— a horse, curious anecdote of the impossibility of, 18
Blindness in a horse, detection of, by a blind man, 55
Blisters, use of, in fractures, 158
Blood, a singular disease of the, in the horse, 51
Boerhaave, his opinion of the absorbents, 552
Boiling the oats for horses, 58
Bond, Sergeant, and the stolen horse, 658
Bots perforating the duodenum, 493
Bowels, a case of specific inflammation of the mucous membrane of the, 193
Brain, the relative bulk of, in brutes and man, 277
——— the relative proportions of the medullary and cortical portions of, 278
Breaking in should be commenced early, 359
——— the horse, not commenced so early by the ancients, 371
——— severity rarely necessary in, 561
——— ancient method of, 371
——— wild horses, the method of, 358
Brett, Mr., on the use of cantharides in glanders, 322
——— his case of foot rot, 496

Brett, Mr., his recommendation of The Veterinarian, 495
Bridles, unknown in the early history of the horse, 396
Brodie, Alex., blacksmith in Peebles, honourable conduct of, 424
Broken wind, may it be connected with rupture of the diaphragm? 622
——————— beautiful illustration of in emphysema of the human lungs, 625
Bronchial tubes, the construction of, 509
——————— their course and termination, 510
Bronchocele, the nature and treatment of, 482
Brown, Mr. Sam., on feltric and anasarca, 253
——————— his case of anasarca accompanied by ascites, 256
Bruised food, that it produces looseness, an erroneous supposition, 679
Brutes are capable of attention, 279
——————— memory, 280
——————— association of ideas, 282
——————— reasoning, 527
——————— imagination, 283
——— instances of maternal affection in, 531
——————— friendship among, 535
——————— filial affection in, 534
——— the intellectual and moral faculties of, 275
Buckthorn, the medicinal effect of, 168
Bunnell, Mr., his cases of open urachus, 638
Cæsarean operation, the, barbarously performed, 624
Canalis infra-orbitarius, the, 11
Cantharides, successful treatment of glanders by, 80, 322
——————— not effectual as a cure for glanders, 13, 258
Capillaries, increased action of, in inflammation, 395
——————— perverted action of, in inflammation, 396
Carditis, cases of, 110
Carnivorous horse, account of one, 25
Carrere, M., his account of cholera in poultry, 418
Cartilages of the ear, description of the, 242
——————— foot, description of the, 363
——————— larynx of domesticated animals, 425
——————— ribs, admirable contrivance of the, 544
——————— trachea, beautiful construction of, 485
Cartwright, Mr., his successful case of ascites, 188
Castley, Mr., his description of spasm of the diaphragm, 614
——————— observations on shoeing, 574
——————— description of his shoe, 579
Castration followed by glanders, 197
Cataract, on the formation of, trial concerning, 460
Catarrh, how distinguished from glanders, 132
Catarrhal fever, Mr. Hodges's treatment in, 568
Cattle, the intellectual and moral qualities of, 409
——— used for riding in Africa, 410
——— the Hottentot backely, 412
——— medicine, remarks on, 140
Cavalry horses in a thunder storm, anecdote of, 562
——————— remarkable anecdote of the power of habit on, 563
Cervical vertebræ, successful treatment of dislocation of the, 374
Chadwick, Mr. W., on the use of the croton tiglii, 21
Chancres of glanders, description and course of, 129
Cheese, curious manufactory of, 499
Chest, description of the best form of, 547
——— proper form of, for a draught horse, 548

Chest, proper form of, for a saddle horse, 549
——- the excellence of the broad deep one, 549
——- narrow, inconvenience of, 550
——- round, sometimes accompanied by thick wind, 550
Cheyne, Capt., his system of manger-feeding, stated and recommended, 680
Chifney, the jockey, spares the whip as much as possible, 658
Chillaby, the mad Arabian, his friendship for a lamb, 535
Chloride of lime, its use in fistulous withers, 612
Chlorine used unsuccessfully in the treatment of glanders, 50
Cholera, cases of, in the human being, 671, 673
——— successful treatment of, 673
——— among horses, 218, 675
——— in poultry, account of, 478
——— cured by gin and ginger tea, 673
——— supposed analogy between it and cholic, 668
——— theory of, 669
Chordæ vocales, the, in different animals, 430
Chords, the, in the horse, curious trial concerning, 294
——————————————— Mr. Dick's remarks on, 568
——— Mr. Cowie's reply to Mr. Dick, 688
——— in the horse, a case of, 445
Clark, Mr. B., description of his shoe, 575
——————— his supposed analogy between cholera and cholic, 668
Clater's Cattle Doctor, review of, 468
Clichy, M., his case of intermittent fever in the horse, 472
——————— on palsy of the lumbar muscles, 511
Coat, the question of a long or short one in the horse, discussed, 653
Cochlea of the ear, description of the, 248
Cole, Mr., his case of vives, 564
Coleman, Professor, defence of, 143
——————————— his theory of farcy, 439
——————————— evidence respecting navicular disease, 418
——————————— description of his shoe, 576
——————————— on strangles, 347
Colic supposed to be congestion of the intestinal blood, 48
—— caused by insufficient power to carry on digestion, 670
—— treated by bleeding, 49
—— bleeding reprobated in, 674
—— cured by warmth, friction, and spirit of pimento, 672
—— cured by the sight of a duck, 499
—— opiates supposed to be useless in, 674
—— French theory and treatment of, 109
—— Mr. Bracy Clark's ditto, 669
—— attended by rupture of the colon, symptoms of, 236
—— supposed analogy between it and cholera, 668
Colocynth, on the medicinal effects of, 236
Colon, rupture of, symptoms of, 236
Conch of the ear, description of the, 241
Concours, the proper mode of electing professors by, 77
Condition of hunters, what, 648
——————————— how effected, 648
——————————— necessity of alteratives in producing, 648
——————————— review of Nimrod's remarks on, 537, 587
Congestion, local, in the puerperal fever of cows, 565
Conolly, Dr., his account of peculiar symptoms following the bite of a rabid dog, 93

Contagion, the main cause of glanders, 200
———- of glanders, the method in which communicated, 203
Cooking food for horses, advantage of, 675
Copper, sulphate of, use of in glanders, 210
Corn should always be given to hunters at grass, 647
Coronary border of the foot, description of the, 307
——— frog-band, description of the, 308, 315
——— ligament, description of the, 361
Cortis, Mr., his case of abscess of the heart, 252
Coryza in cattle, 330
——— the dog, 336
——— horse, 101, 349
——— sheep, 335
——— gangrenous, 351
Cowie, Mr. James, on a farrier's treatment of pneumonia, 25
——— his account of a curious horse cause, 294
———- Mr. Dick's remarks on, 568
——— his reply to Mr. Dick, 688
Cowper, injected the lymphatic vessels from the arterial, 552
Cow-pox and small-pox, the identity of, 43
Cow, Swiss, curious account of, 413
Craven meeting, Newmarket, account of, 287
——— stakes at Derby, account of the, 420
Cream of tartar, medicinal effect of, 167
Crico-arytenoideus lateralis muscle, account of the, 447
——— posticus muscle, account of the, 448
Crico-thyroideus lateralis muscle, account of the, 448
Cricoid cartilage, account of the, 425
Croton tiglii, its use recommended, 21
Crura of the diaphragm, description of the, 615
Curb, how far the hirer of a horse is responsible for its being thrown out, 638
Darley Arabian, the, his friendship for a cat, 535
Derby stakes, the running for, 420
Diaphragm, anatomy of, in the dog, 614
——— horse, 613
——— ox, 614
——— spasm of, 614
——— use of its appendages, 615
——— arteries and veins of, 616
——— inflammation of, 620
——— on the rupture of, 112, 620
——— rupture sometimes chronic, 621
———- of, may be connected with broken wind, 622
——— and intercostals, comparison between their action, 547
Diarrhœa in lambs, treatment of, 521
Dick, Mr., his opinion of the chords in the horse, 296
——— reply to Mr. Cowie on the chords of the horse, 568
——— Mr. Cowie's rejoinder to ditto, 688
——— on cooking food for horses, 675
——— annual examination of his pupils, 354, 358, 414
Dickens, Mr. C., his notice of errata, 24
——— his removal of exostosis on the jaw, 354
Digestion, process of, in the ruminants, 677
Digitalis, on the effects of, 607
Dilator-lateralis, the, 33
Dilatatores nasi anteriores, the, 32

Dinner, annual, of the veterinary students, 178
——————— of the medical students of the London University, 180
——————— of the Veterinary Club, 223, 284
Disease, every, may be a cause of glanders, 196
Dislocation of the cervical vertebræ, successful treatment of, 374
Distemper in the cat, 338
——————— poultry, 339
——————— rabbits, 338
Dogs, interesting anecdotes of their reasoning powers, 527
Draconcule in lambs, destructive effects of the, 521
Drake, Mr., his case of enlargement of the spermatic chord, 499
——————————— dropping after calving, 500
Drink for horses, made by boiling corn, 58
Dropping after calving, a case of, 500
——————————— on the treatment of, 141
Dropsy of the heart in lambs, on, 406
Duck, virtue of the sight of, in cure of colic, 499
Ducks, the diseases of, 340
Duncannon, O'Kelly's, his friendship for a sheep, 535
Duodenum, perforation of, by bots, 493
Dupuy, M., his theory of glanders, 135
Dysentery in cattle, a peculiar species of, 185
Ear, the anatomy of the, 241
Eclipse foot, running for the, at Ascot, 422
Education of the horse, on the, 368, 555
Elasticity of the foot, new view of, 586
——————— lungs, the, 619
——————————— how far concerned with respiration, 620
Emetic tartar successfully used in tetanus, 264
Emphysema of the lungs, on the, 625
——————————— vesicular, 626
——————————— symptoms of, 627, 632
——————————— indications of by auscultation and percussion, 632
——————————— causes of, 628, 630
——————————— produced by hypertrophy, 628
——————————————— atrophy, 628
——————————————— distention of the cells, 630
Emphysema of the lungs, the consequences of, 631
——————————— treatment of, 631, 633
——————————— interlobular, description of, 637
Enlargement of the spermatic chord, case of, 499
Epiglottis, account of the, 426
Epidemic catarrh followed by glanders, 197
——————— fever, the present, account of, 216, 222
——————— catarrh, French treatment of, 106
Epidemics among the lower animals, 42
Ettrick Shepherd, his interesting account of his dog, 529
——————————————— of maternal affection in a sheep, 532
Eustachian tube, description of the, 247
Everatt *v.* Youell, curious trial respecting the sale of lambs, 299
Examinations, public, of veterinary students, 354, 356
——————————— ——————— by whom it should be conducted, 358
Exercise, want of, an occasional cause of glanders, 195
Exostosis, on the anterior maxillary removal of, 354
Expiration, mechanism of, 619

Extracts from my Case Book, 323, 376, 607
False nostrils, the, 33
Farcy is inflammation and ulceration of the absorbents, 266, 439
——— and glanders, different stages of the same disease, 269, 439
——— how distinguished from grease and swelled legs, 270
——————————— surfeit, 271
——— contagious, 271
——— local treatment of, 272
——— constitutional treatment of, 273
——— why curable, when glanders is not, 272, 440
——— the cure often deceitful, 274, 440
——— general cause of, 440
——— doctrine concerning, taught at St. Pancras, 439
——— M. Vatel's doctrine concerning, as taught at Alfort, 441
——— in cattle, 333
——— remedies for, 497
Farrier's boy and the de'il, 659
Feeding of horses should be regulated by their work, 660
Feet, description of the different kind, in relation to shoeing, 577
—— alteration in form of, with every shoe, 579
Feltric, observations on, 253
Fenestræ of the ear, description of the, 244
Fern-root recommended in megrims and staggers, 498
Field, Mr. J. jun., his evidence respecting the navicular disease, 416
Fifth pair of nerves, its supposed influence on the sense of smell, 76
Filial affection in brutes, cases of, 534
Firing through the skin, defence of, 501
Fistula lachrymalis, cause of, 10
——————— French treatment of, 11
——————— in the dog, 11
Fistulous withers, the use of chloride of lime in, 612
——————— treated by pressure, 685
——————— followed by glanders, 197
Flexor tendons of the foot, successful division of, 397
Foals, on inflammation of the joints in, 436
Food of horses, the advantage of cutting or cooking it, 679
——————— should have only a certain quantity of nutritive matter in it, 681
——————— should have as much nutriment, and in as small a bulk as is consistent with the economy of the animal, 683
——————— should be given in the state best suited for digestion, 683
Foot of the horse, the anatomy of, 301
Founder, followed by glanders, 197
Fractures in smaller quadrupeds, mode of treating, 157
——————— of one of the sesamoids, 375
French veterinary practitioners, an account of, 150
Friendship between brutes, cases of, 535
Frog, horny, of the horse, description of the, 312
—— sensitive, 367
Galvanic pile, cauterization by, as a preventive against rabies, 657
Gamboge, on the medicinal effect of, 234
Garget in the cow, cause and treatment of, 593
Garland, Mr., his account of a carnivorous horse, 25
Gastritis, a case of, 687
——————— the post-mortem appearances of, different from those usually described, 688

Geese, the diseases of, 340
Girard's divisions of the foot, with reference to shoeing, 577
Girthing tight, the evil of, 551
Glanders, the improper distinction between acute and chronic, 125
——— symptoms of, 125
——— the discharge of, not sticky at first, 126
——— the left nostril oftenest affected in, 127
——— caution necessary in the examination of, 128
——— the character and course of the chancres of, 129
——— submaxillary lymphatic glands, enlargement of, in, 130
——————————————— not adherent at first, 131
——— how distinguished from strangles, 131
——————————— catarrh, 132
——— post-mortem appearances of, 132
——— no lesion can always be found in the lungs, 132
——— the Schneiderian membrane the seat of, 133
——— the lungs not the primary seat of, 134
——— general view of, 135
——— M. Dupuy's theory of, 135
——— causes of, 137
——— alterations of temperature a cause of, 138
——— ammoniacal vapours a cause of, 138
——— air often respired or loaded with the gas of putrifying substances, a cause of, 139
——— a comparison of different stables as it regards, 139
——— produced by want of exercise, 195
——— caused by every pernicious disease, 196
——— following castration, 197
——— hereditary predisposition to, 198
——— caused by atmospheric influence, 199
——————— moisture, 199
——— age at which horses are most liable to it, 199
——— the main cause of it is contagion, 200
——— not communicated by simple contact, 201
——— communicated probably by the virus being received on an abraded surface, 202
——— uncertain time of its appearance, 203
——— in the human being, 205
——— precautions to be adopted against it, 206
——— on the cure of, 206
——— the supposed cases of cure very doubtful, 207
——— on local applications in, 207
——— on sulphate of copper in, 210
——— treated successfully by repeated bleedings, 50
——— successfully treated by cantharides, 80, 322
——— unsuccessfully treated by cantharides, 13, 258
——— unsuccessfully treated with chlorine, 50
——— old remedies for, 498
——— and farcy, different stages of, the same disease, 269
——— in cattle, 333
——— in sheep, 336
Glans-penis, the removal of a fungous tumour from, 623
Goître in the dog, nature and treatment of, 482
Gold cup, running for the, at Ascot, 422
——————————— Epsom, 420
——————————— Doncaster, 599

Goodwin, Mr., description of his shoe, 575
Googe, Barnaby, curious extracts from, 498
Goose, the singular attachment of one to a pointer, 535
Gray, Mr., on the treatment of fistulous withers by pressure, 685
Grease, how distinguished from farcy, 270
——— followed by glanders, 197
Great St. Leger, account of the odds on, 540, 600
——————————— race, 598
Habit, the force of in horses, 562
Hæmorrhage after castration, amaurosis following, 171
——————— from the nose, on, 68
Hagart *v.* Inglis, account of trial, 229
Hales, Mr., on inflammation of the liver, 261
——————— rupture of the peritoneal coat, 263
——————— his case of abscess of the lungs, 264
Halma Grande, M., experiments with his styptics, 116
Handling colts, advantage of the early practice of, 559
Hard meat, the erroneous prejudice in favour of much of it, 683
Harris, Mr. J., his case of fracture of one of the sesamoids, 375
Hay, proper quantity of for a hunter, 649
Hayes, Mr., on catarrhal fever, 567
——————— the local congestion of cows, 565
Head of the horse, a large plain one preferred, 19
Heart, a case of abscess of, 252
——— aneurism of the right auricle of, 53
——— how affected by the act of respiration, 620
——— a case of hypertrophy of, 118
——— mode of investment of by the pericardium, 665, 667
Heels of the horse, description of the, 307
Henderson, Mr. A., on tetanus, 64
——————— Mr. W., his case of successful division of the flexor tendons, 397
Hepatitis, cases of, 19
Hereditary predisposition, glanders produced by, 198
Hogg, Mr. J., his account of his dog, Sirrah, 529
——————————— maternal affection in a sheep, 532
Hoof of the horse, structure of, 317
——————— the proper form of, 302
——————— spread of the, 303
——————— best colour of, 303
——————— proportional size of, 304
Hoose in cattle, on the treatment of, 142
——————— lambs, treatment of, 521
Horn of the horse's foot, properties of, 319
Horse, on the education of the, 368, 555
——— intellectual principle of the, 17
Horses should not be broken in too early, 373
Horsemanship, early account of, 370
Humanity to animals, sketch of the society for promoting, 464
——————————— advocated, 466
Hunter, J., believed that the lymphatics were the sole absorbents of the body, and arose from surfaces, 552
——————— his opinion of the absorbents, 605, 606
Hunters, the summer's run of at grass, the question discussed, 644

Hunters, the summer's run of at grass, mode in which it should be conducted, 645
——— condition of, description of, 648
——————— how effected, 648
——— the proper method of feeding, 649
——— preparation of on the morning of hunting, 650, 654
——— stable management of, 651
——— by the covert's side not so liable to catch cold, 654
——— management of, with regard to water, 650, 655
——————— after hunting, 655
Hydrops pericardii in lambs, on, 406
Hydrothorax, a case of in the dog, 108
Hypertrophy, a case of in the heart, 118
——————————— Mr. J. Turner's remarks on, 187
Iliacus muscle, abscess on the body of it, 596
Imagination, illustrations of, in brutes, 283
Imitation a powerful principle in young horses, 562
Incubus not placed in the Handicap Stakes in the Craven, 287
Incus, description of the, 245
Inflammation is an increased and perverted action of the arterial capillary system, 388, 395
——————— the heat of explained, 390
——————— redness of, 392
——————— swelling of, 395
——————— pain of, 395
——————— in the lungs of hogs, on, 596
Inquisitor, on the intellectual principle of the horse, 17
Inspiration, the mechanism of, 618
Instinct, the nature and province of, 556
Intellectual principle of the horse, on the, 17
——————— powers of brutes, on the, 275, 527
——————— principle of cattle, on the, 409
Intercostal muscles, description of the, 546
——————— and diaphragm, comparison between their action, 547
Interlobular cellular texture of the lungs described, 626
Intermittent pulse produced by digitalis, 607
——————— fever in the horse cured by quinine, 472
Iodine, its beneficial effect on bronchocele, 484
Iritis supposed to be the commencement of periodical ophthalmia, 381
Jalap, on the medicinal effect of, 235
Jejunum, extravasation of blood between its coats, 320
Jockey, the judgment of, in winning without useless exertion, 658
Joints, inflammation of, in sucking foals, 436
Jointed shoe, description of the, 575
Jones *v.* Breary, account of trial, 231
Karkeek, Mr. on the education of the horse, 368, 555
——————— glanders, 13, 258
——————— his rejoinder to Mr. Pritchard, 564
——————— approbation of Mr. T. Turner's treatment of opened joints, 12
——————— on twin foals, 12
——————— "The Veterinarian," 13
Kerr, Mr., his plea for "The Veterinarian," 123
——— on the chronic and incurable lamnesses of horses, 249
King, Mr., his case of tetanus treated with emetic tartar, 264
King's plate, the, at Ascot, running for, 422
——————— the hunter's running for, 423

Kitching, Mr., his evidence respecting the chords, 296
Labyrinth of the ear, description of the, 247
——————— why aqueous fluid within it, 247
——————— sensibility of the membrane of, 453
Lachrymal duct, description of the, 9
——————— its termination, caution concerning, 10
Lacteal absorbents, Mr. Vines, on the, 406, 433, 604, 693
——— vessels, history of the discovery of, 435
Lacteals, the, supposed by Magendie to take up chyle only, 697
Laing, Mr., his case of tetanus, 622
Lambs, rotted, a curious case respecting the sale of some, 299
——— warranty of, a trial concerning, 419
Lameness, chronic, in horses, causes of, 249
Laminæ, horny, description of the, 309
———sensitive, description of the, 364
——————the elasticity of the foot residing in the interposing fibrous substance, and not in them, 586
Language of animals, on the, 431
Larynx of the dog, cartilages of the, 429
——————— horse, cartilages of the, 425
——————— ox, cartilages of the, 428
——————— swine, cartilages of the, 429
——— the, bloodvessels of, 453
——————— muscles of 447
——————— nerves of, 452
Lateral nasal nerve, account of the, 70
Laxatives, theory of their action, 164
Leeches producing hæmorrhage from the nose, 69
Levator labii superioris alæque nasi, the, 33
Liability, the, of commission horse-dealers, 229
Life, the, of the seed must be destroyed before digestion can take place, 679, 684
Ligamento arytenoideus inferior, account of the, 449
——————————medius, account of the, 449
——————————superior, account of the, 450
Lister injected the lymphatic vessels from the arterial, 552, 601
Liver, inflammation of, followed by glanders, 197
——————— and disorganization of, in the horse, with effusion, by Mr. Hales, 261
——— rupture of the peritoneal coat of, by Mr. Hales, 263
Llaneros, their method of breaking wild horses, 559
Lobules of the lungs, description of the, 626
Low, Mr., his evidence respecting the chords, 295, 571, 690
Lungs, minute anatomy of the, 525
——— a case of abscess in, 264
——— emphysematous, beautiful account of, 625
——— no lesion of, always to be traced to glanders, 132
——— not the primary seat of glanders, 134
——— how invested by the pleuræ, 667
Lymphatics, Mr. Vines on the, 406, 433, 604
——————— history of the discovery of, 435
——————— supposed to be the only absorbents, 553
——————— the red colour of, varying with the strength or weakness of the animal, 603
Lymphatic vessels, the, are a system of serous veins, 698
Lyons, proceedings at the veterinary school of, 105, 155

Magendie, M., his theory of the sense of smell combatted, 76
——— opinion that the lymphatics can receive red blood from the arteries, 601
——— his experiments on the absorption of the lacteals and veins, 697
Magnesia, medicinal effect of, 167
——— sulphate of, medicinal effect of, 167
Malleus, description of the, 244
Manyplus, the, obstruction of, 186
Materia Medica, review of Moiroud on the, 163
Maternal affection in a bitch, 531
——— sheep, 532
Matilda and Mameluke, Robinson's peculiar judgment in the running between them, 659
Matson *v.* Webb, on the warranty of lambs, 419
Maxillary, anterior, the, exostosis on, 354
——— sinuses, account of the, 9
Meatus auditorius, externus, description of the, 243
——— internus, description of the, 249
——— of the nostril, description of the, 8
Mediastinum, description of the, 665, 668
Medical students at the University of London, their dinner to their Professors, 180
Membrane generally, anatomical description of, 34
——— the Schneiderian, anatomical description of, 35
Membranes, the serous, an account of, 661
Memory, illustrations of, in brutes, 280
Meyer, M., his case of aneurism, 53
——— Mr. T. jun., on dysentery in cattle, 185
Milk fever, on the treatment of, in cattle, 141
——— local congestion in, 565
Mind of the horse, on the importance of attending to, in the medical treatment, 18
Mogford, Mr., on enlargement of the spleen, 212
Moiroud's Materia Medica, review of, 163, 233
Moisture has much to do with glanders, 199
Moonraker and Grimaldi, steeple-chase between, 224
——— steeple-chase of, with Red Rover and Grimalkin, 285
——— second steeple-chase with Grimalkin, 285
Murrain, a species of dysentery resembling it, 187
Muscles of the internal ear, description of the, 245
——— on the spontaneous rupture of, 590
Nails, the effect of, and the proper method of nailing, 580
Narrow chest, the disadvantages of, 550
Nasal cavity, the veins of, 68
——— gleet in the horse, on, 103
——— membrane, a vulnerable part, 75
Nasalis brevis, description of the, 33
——— longus, description of the, 33
Navicular disease, curious trial respecting, 416
——— review of Mr. J. Turner's work on, 455
Neurotomy, effect of in tetanus, 67
Nerves, table of the origins and course of, 181
——— more developed in brutes than in men, 276
——— of the horse, account of the, 70
Newmarket Craven Meeting, account of the, 287

Newmarket, why veterinary surgeons do not prosper there, 88
Nimrod first noticed the spasm of the diaphragm, 614
——— on the condition of hunters, review of, 537, 586, 644
Non-professional interference with veterinary practice, the folly of, 537
Nose of the dog, worms in the, 337
———— horse, worms in the, 329
Nostrils, anatomical description of the, 32
———muscles of the, 32
———in different breeds, 34
———the left oftenest affected in glanders, 127
———false, account of the, 33
Nuck injected the lymphatic vessels from the arterial, 552
Nutriment, the comparative quantity of, in different seeds, 681
———— proportion of, which the food should contain, 683
Oak Stakes, running for the, 421
Oats, proper quantity of, for a hunter, 649
—— the proportional nutriment of, 681
Oatland Stakes at Ascot, the running for, 422
Odiham Society, the, principally instrumental in the establishment of the Veterinary College, 26
——— library, inquiry concerning the, 79
Œsophagean canal in cattle, description of, 160
Olfactory nerve, account of the, 70
———— comparative size of, 72
One-sided nailed shoe, description of, 576
———— defence of, 502
———— review of Mr. Turner's system of, 455
Opened joints, on the treatment of, 146
———— Mr. T. Turner's treatment of, 12
Opiates supposed to be useless in colic, 674
Ophthalmia, periodical, on, 379
———— supposed to be hereditary, 381
———————— commence in the iris, 381
———— produced by metastasis of some other disease, 382
———— not generally caused by the poisonous gas of stables, 383
———— the progress of, 384
Os hyoides, the, in the horse, 404
———— other animals, 405
— orbiculare, description of the, 245
Ossiculi of the ear, the mechanical advantage gained by, 246
Over-marked, the management of a hunter, when, 655
Oxen, proofs of their sagacity, 658
Ozena in the horse, on, 327
———— cattle, 333
———— the dog, 337
Paddocks, description of proper ones for hunters at grass, 645
Pain of inflammation, the, explained, 395
Palatine bone, description of the, in the horse, 3
Palpebro-nasal nerve, account of the, 70
Palpitation of the heart, cases of, 110
Palsy of the lumbar muscles in the horse, 511
—— treated by acupuncturation, 514, 517, 519
————nux vomica, 512, 516, 519
Paring out the foot, proper method of, 581
Park, hunters should never be turned out in, 648

Parry, Mr., his advocacy of humanity to animals, 466
Parturition, proper treatment of cows before, 593
Peas, the proportional nutriment of, 681
Pectineus muscle, lesion of, 591
Penis of the horse, case of amputation of, 623
Percivall, Mr. W., his Anatomy of the Horse, 14, 61, 121, 181, 241, 301, 361
——————————————— review of, 584
——————— account of the present epidemic, 216
——————— theory of the transverse muscle, 486
——————— his case of tumour in the abdomen, 22
Pericardium, description of the, 665
Phrenic nerve, anatomy and function of, 617
——————— effect of the division of, 617
Pig, curious predilection of for peculiar teats, 498
——doctoring extraordinary, 58
Pigeons, on the diseases of, 340
——— dung used as a remedy for farcy, 497
Pleasure and pain, the only movers of the mind, 557
Pleura, a description of, 662
——— mode of investing the lungs, 666
——— consisting of two distinct bags, 667
——— use of the glistening surface of, 661
——— description of the adherent surface, 664
——— curious continuity of membrane, 665
——— not perforated even by bloodvessels or nerves, 665
——— admirable use of the, 666
——— adhesion between, 662
——— the fluid exhaled by, 662
Pleurisy and pneumonia, different effect of purging in, 666
——— followed by glanders, 197
Pneumonia, a case of, 323
————— and pleurisy, different effects of purging in, 666
————— a farrier's treatment of, 25
————— in hogs, remarks on an epizootic, 596
Poisonous, some substances are so when undigested, which are otherwise harmless, 670
Potash, sulphate of, medicinal effect of, 167
——— tartrate of, medicinal effect of, 167
——— bi-tartrate of, medicinal effect of, 167
——— tartrate of soda, medicinal effect of, 168
Potatoes, the proportional nutriment of, 681
Poultry, on the diseases of, 340
——— account of cholera among, 478
Prevor, M., cauterizes the wound inflicted by a rabid dog with the galvanic pile, 657
Pregnancy, the method of ascertaining the existence of, in a mare, 213
Pressure, in the treatment of quittor, not used by the French, 47
Pritchard's, Mr. R, defence of firing through the skin, 501
——————— on the treatment of glanders by cantharides, 80
——————— inflammation of the joints in foals, 436
——————— one-sided nailing, 502
——————— periodical ophthalmia, 379
Professors, the method of appointing them in the French schools, 59
Psoas muscle, a case of laceration of its fibres, 596
Puerperal fever, a case of, 500

Pulmonary artery, account of the, 14
——————veins, account of the, 61
Purgatives, theory of their action, 164
——————and laxatives, distinction between, 165
Purging in pneumonia and pleurisy, different effect of, 666
Quarters of the horse, description of the, 307
Quinine, sulphate of, intermittent fever cured by, 472
Quittor, the French mode of treating, 47
Rabbits, the diseases of, 338
Rabies, French notion of, 155
——— supposed recovery from, 156
Rabid dog, peculiar symptoms following the bite of, 92
—— animals, the bites of, cauterized with the galvanic pile, 657
Raven, the singular attachment of one to a dog, 536
Reason, power of, in brutes, 527
Reck, the Baron de, on the draconcule in lambs, 521
Rectus capitis anticus major, partial rupture of, 591
Red Rover and Moonraker, steeple-chase between, 285
—————— Broomfield, steeple-chase between, 286
— water, on the treatment of, 142
Redness of inflammation, the, explained, 392
Renault, M., his treatment of quittor, 47
———————— opinion and treatment of colic, 48
Respiration, the mechanism of, 618
—————— auxiliary muscles concerned in, 618
—————— how far affected by atmospheric pressure, 619
Responsibility of veterinary surgeons, a case relating to the, 639
Revenge of a horse, a singular anecdote of, 560
Review of Clater's Cattle Doctor, 468
———— Nimrod on the Condition of Hunters, 537, 587, 644
———— Percivall's Anatomy of the Horse, 587
———— Turner on the Foot, 455
———— Voice of Humanity, 466
Rhenitis, acute, in the horse, 349
————chronic, in the horse, 350
————in cattle, 353
Rhubarb, medicinal effects of, 168
Ribs, anatomy of the, 542
—— number of the, 543
—— the rotatory motion of enlarging the thorax, 546
Rigot, M., on the spontaneous rupture of the muscles, 590
Rimæ glottidis, membranes attached to, in different animals, 432
Riss, M., his cases of amaurosis following other diseases, 169
———————— aneurism, 43
Roads, the ill effects of driving the Highland cattle over, 57
Robinson, the jockey, spares the whip as much as possible, 658
———————— his peculiar judgment in the race between Matilda and Mameluke, 659
Rochelle salts, medicinal effects of, 168
Rotted lambs, a curious trial respecting the sale of some, 299
Round chest, advantages and disadvantages of, 547
Roup, the, in poultry, 339
Rumen, the mode in which food is received into it, 160
Rupture of the colon, symptoms of, 237
———————— diaphragm, usually fatal, 620
———————————— may be chronic, 621

Rupture of the diaphragm, is it connected with broken wind? 622
——————— peritoneal coat of the liver, 263
——————— muscles generally, 590
Ruysch, first discovered the bloodvessels of the cartilages, tendons, &c. 694
Sacculi laryngis, the, in different animals, 432
Sacrum, fracture of, followed by glanders, 197
Saddlers unknown in the early history of the horse, 368
Saliva, the immense quantity secreted during mastication, 676
Salt, on the use of in the fodder of animals, 174
—— improves discoloured and innutritious food, 175
—— prevents mildew or mould, 176
Sandcrack, the French mode of treating, 47
Saussol, M., on pneumonia in the hog, 596
Scammony, on the medicinal effect of, 235
Scott, Mr. Isaac, his experience of the advantage of cutting and bruising the food of horses, 679
Scrutator, his letter on the appointment of veterinary professors, 77
Schneiderian membrane, description of the, 35
——————————— the character and office of, 137
——————————— its hue indicative of inflammation, 37
——————————— the examination of it urged, 38
——————————— the seat of glanders, 133
Seated shoe, description of the, 575
Seeds of fruits and plants, the effect produced on them in the stomach, 678
——————————— the life of must be destroyed before they can be digested, 679
——— different, the quantity of nutriment in, 681
Semicircular canal, description of the, 248
Senna, medicinal effects of, 168
Septum narium, description of the, 5
——————— a perfect division only in the horse, 6
Seriferous and sanguiferous arteries, difference between, 604
Serous membranes, an account of the, 661
——————————— the use of their polished surface, 661
——————————— theory of adhesion between, 662
——————————— nature of the effused fluid, 662
——————————— absorbents of, 662
——————————— continuity of texture of, 665
——————————— elasticity of, 663
——————————— extensibility of, 663
——————————— independence of each, 665
——————————— possess little sensibility, 663
——————————— possess great sensibility when under disease, 664
——————————— not always possessed of great sensibility when under disease, 664
——————————— vascularity of, 665
Sesamoids, fracture of one of them, 375
Sewell, Mr., his theory of the transverse muscle, 486
Shackle *v.* Coggs, curious trial, 416
Shaving a horse, 56
Sheep, interesting account of maternal affection in one, 532
——— curious illustration of memory in, 281
Shepherd's dog, interesting account of one, 529
Shoe, Mr. Castley's description of, 579
——— curved-toed, description of, 575
——— frog-bar, description of, 576

Shoe, hinge-toed, description of, 575
—-— one-sided-nailed, description of, 576
—-— the common seated, description of, 575
—-— no one will suit every foot, 577
Shoeing, general observations on, 574
——— description of the different kinds of feet in relation to, 577
Shoulder, the muscular connexion of with the chest, 542
Simpson, Mr. W., on the effects of digitalis, 607
——————— extracts from his case book, 323, 376
——————— on fistulous withers, 611
——————— inflammation, 388
——————— opened joints, 146
——————— pneumonia, 323, 607
Small-pox and cow-pox, identity of, 43
Smelling, on the sense of, 70
——— on the influence of what nerve does it depend? 76
Smith, Mr. D., his evidence respecting the chords, 296, 571, 692
——— T., his evidence respecting the chords, 296
Sniffles in rabbits, on, 339
Soda, sulphate of, medicinal effect of, 167
Solar border of the foot, description of the, 309
Sole of the horse's foot, description of the, 311
—— the sensitive, description of the, 366
Sonderland, Dr., his beautiful experiments on the small and cow-pox, 43
Sorrel supposed to be a cause of diarrhœa in lambs, 526
Spasm of the diaphragm, Mr. Castley's account of, 615
Spermatic chord, a case of enlargement of, 499
Spinal accessory, effect of the division of, 617
Spleen, method of discovering enlargement of, 212
———, cases of enlargement of, 213
Spooner, Mr. W. C., his successful treatment of dislocation of the cervical vertebræ, 374
——————— on dropsy of the heart in lambs, 406
——————— his case of gastritis, 687
——————— on a specific inflammation of the bowels, 193
——————— his plea for the "Veterinarian," 192
Sporting Department, the, 224, 360, 420, 480, 540, 600, 660
——— Jurisprudence, 229
Stables hot and close, the cause of glanders, 138
——— a comparison of different, as it regards glanders, 139
——— hot, the question of their injuriousness discussed, 651
Stable-management of hunters, description of, 651
Staggers, various causes of, 113
Stapes, description of the, 245
Starting, the laws of, 231
Steeple chase, accounts of, 224, 284
Sternum, description of the, 544
Stirrup unknown in the early history of the horse, 369
Stolen horse, curious history of, 658
Stomachs of cattle, on the power of directing food or medicine into either of them, 141, 159, 161
——————— Mr. Dick's opinion of their different functions, 677
Stomach pump, great use of, in administering medicines to cattle, 161
——-——— staggers, accompanied by amaurosis, 169
——-——— of the horse, bad effects of overloading it, 682

Strangles, symptoms of, 340
——— contagious, 342, 348
——— a method by which nature gets rid of that which oppresses her, 342
——— treatment of, 343, 348
——— how distinguished from glanders, 131
——— Mr. Coleman's theory and treatment of, 347
——— French theory of, 349
——— in the ox, 346
Students, exclusion of, from the anti-room at the Veterinary Dinners, 98
Styptic, extraordinary experiments with, 116
Submaxillary lymphatic glands, how affected in glanders, 130
——————————— caution in the examination of, 130
Subscapularis muscle, partial rupture of, 591
Sulphate of copper, use of in glanders, 211
——— magnesia, medicinal effect of, 167
——— potash, medicinal effect of, 167
——— soda, medicinal effect of, 167
Summer's run at grass for hunters, the question discussed, 644
——————————— should commence early, and end in June, 644
——————————— the loss of condition often accompanying it accounted for, 647
Sumner, Mr. R., his remarks on cattle medicine, 140
Superior maxillary bone in the horse, description of the, 1
——————————— cattle, description of the, 2
——————————— swine, description of the, 2
Superstition, popular, cured by a farrier's boy, 659
Superpurgation, successful treatment of, 379
——————— a curious case of, 446
Suppression of milk, accompanied by amaurosis, 169
Surfeit, how farcy distinguished from, 271
Swelled legs, how farcy distinguished from, 270
Sympathetic nerves, usually affected in tetanus, 67
Tait, Mr., his case of chords, 445
——————————— treated by physic, 445
Teats of cows, on the diseases of, 593
Temperature, alternations of, a cause of glanders, 138
Testicle, inflammation of, followed by glanders, 197
Tetanus always sympathetic in the horse, 64
——— following the stoppage of hæmorrhage from the jugular by the application of the cautery, 639
——— on bloodletting in, 87
——— unsuccessful cases of, 65, 111
——— successful cases of, 67, 622
——— successfully treated by physic and opium, 622
——— chronic, a case of, 445
Thorax, anatomy of the, 541
Thorn *v.* Hunton, trial respecting the chords, 294
Thymus gland, its structure, 507
——————— connected with nutrition, 508
Thyroid cartilage, account of the, 427
——— glands, structure of the, 481
——— diseases of, 482
Thyro-arytenoideus muscle, account of the, 451
——— epiglottideus muscle, account of the, 451

Tombs, Mr. John, his case of hepatitis, 19
Trachea of the horse, the structure of, 484
———- the, within the thorax, description of, 487
———- membrane of the, 488
———- nerves of the, 489
———- in cattle, 489
————- birds, 490
Tracheotomy, description of the operation of, 503
———— bad effect of excising any ring in, 504
———— when tubes should be inserted in, 505
———— curious case of, 506
———— on the dog, 506
———— in rabies, 506
Transverse muscle, of the trachea, its situation and function, 486
Tumour, a very large in the abdomen, case of, 22
Turbinated bones, description of the, 7
Turner, Mr. J., his theory of animal heat, 386
——— remarks on Verelisse's case of hypertrophy of the heart, 187
——— on neurotomy, 84
——— his one-sided nailed shoe, 576
——— review of his work on the foot of the horse, 455
——— T., approbation of his treatment of opened joints, 12
Turpentine, good effect of, in the diarrhœa and hoose in lambs, 523
Twin foals, on, 12
Tympanitis, operation for, 110
Udder of cows, on the diseases of, 593
University of London, the annual dinner of the students, 180
———————— veterinary lectures at, 1, 32, 68, 101, 124, 195, 266, 327, 400, 425, 447, 481, 503
Urachus, discharge of urine from, description and treatment of, 637
Utero-gestation, amaurosis accompanying, 173
Vatel, M,, on farcy, 441
Veins, table of the, 62
Velum palati, anatomy of the, 400
Venæ cavæ, the, 61
Vestibule of the ear, description of the, 248
Veterinarian, plea in favour of the, 123, 192, 210
Veterinary Club, the annual dinner of, 223, 284
————- College, history of the establishment of, 26
————————- unsuccessful in its treatment of opened joints, 146
————- profession, rapid improvement of, 39, 145
————————- degraded state of, 88
————————- not so degraded as some have represented, 144
————- dinner, exclusion of the students from the anti-room, 98
————- jurisprudence, 229, 294, 416, 460, 638
————- lectures, Mr. Youatt's, 1, 32, 68, 101, 124, 195, 266, 327, 400, 425, 447, 481, 503, 541, 612, 661
————- practice, the absurdity of non-professional interference with, 538
————- practitioners, account of the French, 150
————- professor, the proper mode of appointing, 76
————- surgeons, newly graduated, 55
————- surgeon should have a natural taste for his profession, 151
————————- the honourable conduct required from him, 151
————————- the recompence of, 153
————————- discouraging circumstances to which exposed, 154
————————- should be protected against empirics, 154

Veterinary surgeon French cavalry, pay of, 155
——————- noble resistance of the demand of compensation for the death of a horse, 539
Verelisse, M., his case of hypertrophy of the heart, 118
——————————————— Mr. Turner's remarks on, 187
Vines's Mr., denial of the good effect of his remedy for glanders, 13
———— defence of his Treatise on Glanders, 80
———— on the blood, bloodvessels, and absorbents, 406, 433, 551, 601
———— his theory of animal heat, 493
Vives, on the, 345
——— a case of, 564
Voice, theory of the in different animals, 430
——— of Humanity, Vol. II, review of, 464
Vomer, description of the, in cattle, 4
——————————————- the horse, 5
Vomiting, the cause of difficulty of in the horse, 401
V. S. on the Odiham library, 79
—— in reply to W. J. G., 143
—— W. J. G.'s reply to, 259
Wall of the horse's hoof, description of the, 305
Warranty of lambs, trial respecting, 419
Water, the proper quantity of for hunters, 650
Watson, Mr., his evidence respecting the chords, 295, 571
Watts, Mr. G., his case of disease of the jejunum, 320
Wheat, the proportional nutriment of, 681
Whip, folly of the indiscriminate use of in a race, 659
White-blooded animals, the nature of the blood and bloodvessels in them, 693
W. J. G. on the degraded state of the veterinary profession, 88
——— a reply to, 143
——— his rejoinder to it, 259
Work, returning too soon to after lameness, mischief of, 251
Worms in the nose of the dog, 337
——————————— horse, 329
Yew, poisonous only when undigested, 670
York meeting, account of the, 539
Youatt, Mr., his annual examination of his pupils, 356
——————- veterinary lectures, 1, 32, 68, 101, 124, 195, 266, 327, 400, 425, 447, 481, 503, 541, 612, 661
Young, Mr., his case of amputation of the penis, 623
Zany, successful treatment of his lameness, by Mr. Watts, 91.

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